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# Miniature Flat Lead Package Diode HSN278WK

## Summary

- Schottky-barrier detector suitable for mobile communications.
- Very small and low-profile MFPK (1.4 × 1.2 × 0.6 mm) (60% reduction compared to CMPAK)

## Features

- High detected output level because of low forward voltage, and low capacity.
- Two devices in one small outline package, MFPK, so the number of parts can be reduced.

## Applications

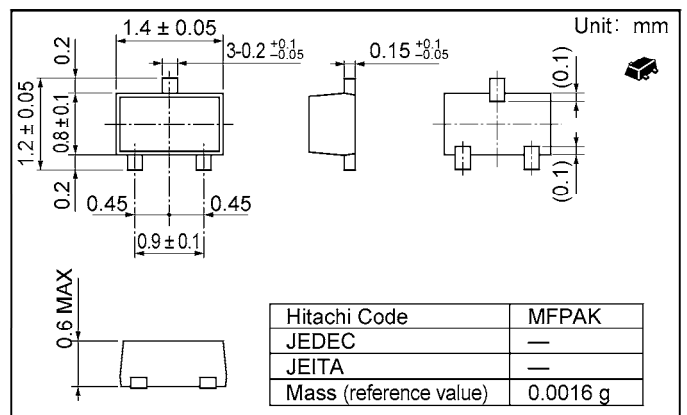
- Mobile phones
- Digital still cameras

## Absolute Maximum Ratings

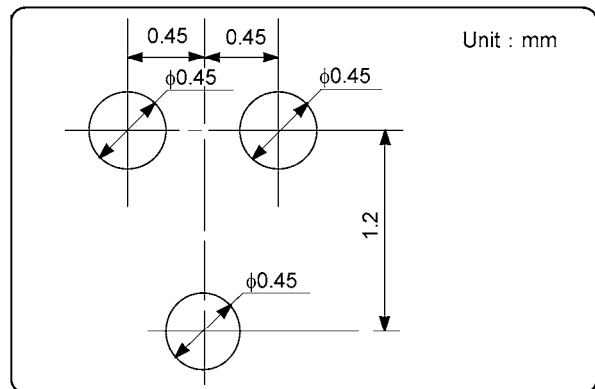
(Ta = 25°C)

Item	Symbol	Value	Unit
Repetitive peak reverse voltage	$V_{RRM}$	30	V
Reverse voltage	$V_R$	30	V
Non-repetitive peak forward surge current	$I_{FSM}$	200	mA
Peak forward current	$I_{FM}$	150	mA
Average rectified current	$I_O$	30	mA
Junction temperature	$T_j$	125	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

## Package



## Land Dimensions



## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Forward voltage	$V_{F1}$	—	—	0.30	V	$I_F = 1 \text{ mA}$
	$V_{F2}$	—	—	0.95	V	$I_F = 30 \text{ mA}$
Reverse current	$I_R$	—	—	700	nA	$V_R = 10 \text{ V}$
Capacitance	$C$	—	—	1.50	pF	$V_R = 1 \text{ V}, f = 1 \text{ MHz}$
ESD-capability	—	100	—	—	V	$C = 200 \text{ pF}, R_L = 0 \Omega$ , One pulse in forward and reverse directions.

# Index

Type No.	Package	Page	Type No.	Package	Page	Type No.	Package	Page	Type No.	Package	Page
1N4148	DO-35	7	HSM88WK	MPAK	8	HVD133	SFP	6	HZC3.0	UFP	9
1N47xx Series	DO-41	11	HSM107S	MPAK	9	HVD138A	SFP	6	HZC3.3	UFP	9
1N52xx Series	DO-35	11	HSM123	MPAK	7	HVD141	SFP	6	HZC3.6	UFP	9
1S2074(H)	DO-35	7	HSM124S	MPAK	7	HVD142	SFP	6	HZC3.9	UFP	9
1S2075(K)	DO-35	7	HSM126S	MPAK	9	HVD142A	SFP	6	HZC4.3	UFP	9
1S2076	DO-35	7	HSM198S	MPAK	8	HVD144	SFP	6	HZC4.7	UFP	9
1S2076A	DO-35	7	HSM221C	MPAK	7	HVD144A	SFP	6	HZC5.1	UFP	9
1SS81	DO-35	7	HSM223C	MPAK	7	HVD145	SFP	6	HZC5.6	UFP	9
1SS82	DO-35	7	HSM276AS	MPAK	8	HVD350B	SFP	4	HZC6.2	UFP	9
1SS83	DO-35	7	HSM276ASR	MPAK	8	HVD355B	SFP	4	HZC6.8	UFP	9
1SS86	DO-35	8	HSM276S	MPAK	8	HVD358B	SFP	4	HZC7.5	UFP	9
1SS88	DO-35	8	HSM276SR	MPAK	8	HVD359	SFP	4	HZC8.2	UFP	9
1SS106	DO-35	8	HSM2694	MPAK	5	HVD365	SFP	4	HZC9.1	UFP	9
1SS119	MHD	7	HSM2836C	MPAK	7	HVD368B	SFP	4	HZC10	UFP	9
1SS120	MHD	7	HSM2838C	MPAK	7	HVD369B	SFP	4	HZC11	UFP	9
1SS198	MHD	8	HSN278WK	MCPAK	8	HVD372B	SFP	4	HZC12	UFP	9
1SS270	MHD	7	HSS81	MHD	7	HVD380B	SFP	4	HZC13	UFP	9
1SS270A	MHD	7	HSS82	MHD	7	HVD381B	SFP	4	HZC15	UFP	9
1SS286	MHD	8	HSS83	MHD	7	HVD385B	SFP	4	HZC16	UFP	9
HRB0103A	CMPAK	8	HSS104	MHD	7	HVD396C	SFP	4	HZC18	UFP	9
HRB0103B	CMPAK	8	HSU83	URP	7	HVD397C	SFP	4	HZC20	UFP	9
HRB0502A	CMPAK	8	HSU88	URP	8	HVL138A	EFP	6	HZC22	UFP	9
HRC0103A	UFP	8	HSU119	URP	7	HVL142	EFP	6	HZC24	UFP	9
HRC0202A	CMPAK	8	HSU227	URP	8	HVL142A	EFP	6	HZC27	UFP	9
HRC0203B	UFP	8	HSU276	URP	8	HVL144	EFP	6	HZC30	UFP	9
HRC0203C	UFP	8	HSU276A	URP	8	HVL144A	EFP	6	HZC33	UFP	9
HRU0103A	URP	8	HSU277	URP	5	HVL145	EFP	6	HZC36	UFP	9
HRU0203A	URP	8	HVB14S	CMPAK	6	HVL355B	EFP	4	HZK Series	LLD	10
HRU0302A	URP	8	HVB27WK	CMPAK	5	HVL358B	EFP	4	HZK-L Series	LLD	10
HRW0202A	MPAK	8	HVB187YP	CMPAK-4	6	HVL385B	EFP	4	HZK-LL Series	LLD	10
HRW0202B	MPAK	8	HVB190S	CMPAK	6	HVL388C	EFP	4	HZM-N Series	MPAK	10
HRW0203A	MPAK	8	HVB350BYP	CMPAK-4	4	HVL396C	EFP	4	HZM3.3WA	MPAK	9
HRW0203B	MPAK	8	HVB387BWK	CMPAK	4	HVL397C	EFP	4	HZM4.3FA	MPAK-5	9
HRW0302A	MPAK	8	HVC131	UFP	6	HVM14	MPAK	6	HZM5.6ZFA	MPAK-5	9
HRW0502A	MPAK	8	HVC132	UFP	6	HVM14S	MPAK	6	HZM6.2ZMFA	MPAK-5	9
HRW0503A	MPAK	8	HVC133	UFP	6	HVM14SR	MPAK	6	HZM6.2ZMWA	MPAK	9
HRW0702A	MPAK	8	HVC142	UFP	6	HVM16	MPAK	5	HZM6.8MFA	MPAK-5	9
HRW0703A	MPAK	8	HVC142A	UFP	6	HVM27WK	MPAK	5	HZM6.8MWA	MPAK	9
HSB83	CMPAK	7	HVC145	UFP	6	HVM187S	MPAK	6	HZM6.8ZMFA	MPAK-5	9
HSB83YP	CMPAK-4	7	HVC190	UFP	6	HVM187WK	MPAK	6	HZM6.8ZMWA	MPAK	9
HSB88AS	CMPAK	8	HVC200A	UFP	5	HVM189S	MPAK	6	HZM7.5FA	MPAK-5	9
HSB88WA	CMPAK	8	HVC202A	UFP	5	HVR100	SRP	5	HZM27FA	MPAK-5	9
HSB88WK	CMPAK	8	HVC202B	UFP	5	HVU17	URP	4	HZM27WA	MPAK	9
HSB88WS	MOP	8	HVC300A	UFP	5	HVU131	URP	6	HZN6.8ZMFA	VSON-5	9
HSB88YP	CMPAK-4	8	HVC300B	UFP	5	HVU132	URP	6	HZS Series	MHD	10
HSB0104YP	CMPAK-4	8	HVC306A	UFP	5	HVU133	URP	6	HZS-L Series	MHD	10
HSB123	CMPAK	7	HVC306B	UFP	5	HVU145	URP	6	HZS-LL Series	MHD	10
HSB124S	CMPAK	7	HVC307	UFP	5	HVU187	URP	6	HZS-N Series	MHD	10
HSB226S	CMPAK	8	HVC308A	UFP	5	HVU200A	URP	5	HZT33	DO-35	10
HSB226WK	CMPAK	8	HVC316	UFP	5	HVU202A	URP	5	HZU Series	URP	10
HSB226YP	CMPAK-4	8	HVC317B	UFP	5	HVU202B	URP	5	HZU-L Series	URP	10
HSB276AS	CMPAK	8	HVC350B	UFP	4	HVU300A	URP	5	HZU-LL Series	URP	10
HSB276AYP	CMPAK-4	8	HVC355B	UFP	4	HVU300B	URP	5	HZU5.1G	URP	9
HSB276S	CMPAK	8	HVC358B	UFP	4	HVU306A	URP	5	HZU5.6G	URP	9
HSB278S	CMPAK	8	HVC359	UFP	4	HVU306B	URP	5	HZU5.6Z	URP	9
HSB2836	CMPAK	7	HVC362	UFP	4	HVU307	URP	5	HZU6.2G	URP	9
HSB2838	CMPAK	7	HVC363A	UFP	5	HVU316	URP	5	HZU6.2Z	URP	9
HSC88	UFP	8	HVC363B	UFP	5	HVU350B	URP	4	HZU6.8G	URP	9
HSC119	UFP	7	HVC365	UFP	4	HVU355B	URP	4	HZU6.8Z	URP	9
HSC226	UFP	8	HVC368B	UFP	4	HVU359	URP	4	HZU7.5G	URP	9
HSC276	UFP	8	HVC369B	UFP	4	HVU363A	URP	5	HZU8.2G	URP	9
HSC276A	UFP	8	HVC372B	UFP	4	HVU363B	URP	5	HZU9.1G	URP	9
HSC277	UFP	5	HVC374B	UFP	4	HVU383B	URP	4	HZU10G	URP	9
HSC278	UFP	8	HVC375B	UFP	4	HVU417C	URP	5			
HSD88	SFP	8	HVC376B	UFP	4	HZ Series	DO-35	10			
HSD226	SFP	8	HVC379B	UFP	4	HZ(H) Series	DO-35	10			
HSD276A	SFP	8	HVC380B	UFP	4	HZ-L Series	DO-35	10			
HSD278	SFP	8	HVC381B	UFP	4	HZ-LL Series	DO-35	10			
HSK83	LLD	7	HVC383B	UFP	4	HZ-P Series	DO-41	10			
HSK120	LLD	7	HVC385B	UFP	4	HZB5.6MFA	CMPAK-5	9			
HSK122	LLD	7	HVC386B	UFP	4	HZB6.8MWA	CMPAK	9			
HSK4148	LLD	7	HVC396C	UFP	4	HZB6.8ZMFA	CMPAK-5	9			
HSM83	MPAK	7	HVC397C	UFP	4	HZC2.0	UFP	9			
HSM88AS	MPAK	8	HVC417C	UFP	5	HZC2.2	UFP	9			
HSM88ASR	MPAK	8	HVD131	SFP	6	HZC2.4	UFP	9			
HSM88WA	MPAK	8	HVD132	SFP	6	HZC2.7	UFP	9			

## Variable Capacitance Diodes for Electronic Tuning

Application	Package	Type No.	Ratings	Characteristics					Status	
			V <sub>R</sub> (V)	C (pF)	n	C <sub>V<sub>R</sub>}/C<sub>V<sub>R</sub></sub></sub>	r <sub>s</sub> (Ω) max			
VCO	URP	HVU17	15	C1 = 50 to 85, C3 = 16.1 to 27.3, C4.5 = 5.23 to 8.84		5.6 min	1/4.5	-	O☆	
		HVU350B	15	C1 = 15.5 to 17.0, C4 = 5.0 to 6.0		2.8 min	1/4	0.5	O☆	
		HVU355B	15	C1 = 6.4 to 7.2, C4 = 2.55 to 2.95		2.2 min	1/4	0.6	O☆	
		HVU359	15	C1 = 24.8 to 29.8, C4 = 6.0 to 8.3		3.0 min	1/4	1.5	O☆	
		HVU383B	15	C1 = 19.0 to 21.0, C4 = 8.5 to 10.0, C7 = 4.5 to 5.5		2.0 min	1/4	0.5	Δ☆	
					3.5 min	1/7				
		UFP	HVC350B	15	C1 = 15.5 to 17.0, C4 = 5.0 to 6.0		2.8 min	1/4	0.5	O☆
	HVC355B		15	C1 = 6.4 to 7.2, C4 = 2.55 to 2.95		2.2 min	1/4	0.6	O☆	
	HVC358B		15	C1 = 19.5 to 21.0, C4 = 8.00 to 9.30		2.2 min	1/4	0.4	O☆	
	HVC359		15	C1 = 24.8 to 29.8, C4 = 6.0 to 8.3		3.0 min	1/4	1.5	O☆	
	HVC362		15	C1 = 41.6 to 49.9, C4 = 10.1 to 14.8		3.0 min	1/4	2.0	O☆	
	HVC365		15	C1 = 27.05 to 28.55, C4 = 6.05 to 7.55		3.0 min	1/4	1.5	O☆	
	HVC368B		10	C1 = 15.0 to 16.5, C2 = 9.0 to 10.2, C3 = 5.0 to 6.0		2.2 min	1/3	1.1	O☆	
	HVC369B		15	C1 = 4.65 to 5.15, C4 = 1.85 to 2.15		2.3 min	1/4	0.5	O☆	
	HVC372B		15	C1 = 15.0 to 17.0, C4 = 7.0 to 8.5		2.0 min	1/4	0.4	O☆	
	HVC374B		10	C1 = 21.5 to 24.0, C2 = 12.5 to 14.5		1.68 to 1.75	1/2	1.2	O☆	
	HVC375B		10	C1 = 15.0 to 16.5, C3 = 5.0 to 6.0, C4 = 3.3 to 4.0		4.0 min	1/4	1.1	O☆	
	HVC376B		15	C1 = 25.0 to 28.5, C4 = 4.8 to 6.8		4.3 min	1/4	0.8	O☆	
	HVC379B		10	C0.5 = 2.9 to 3.20, C2.5 = 1.25 to 1.53		1.8 min	0.5/2.5	1.0	Δ☆	
	HVC380B		15	C1 = 2.88 to 3.12, C3 = 1.66 to 1.795, C4 = 1.36 to 1.471		1.7 to 1.84	1/3	0.8	Δ☆	
						2.08 to 2.25	1/4			
	HVC381B		15	C1 = 10.0 to 11.0, C3 = 5.8 to 6.4		1.65 min	1/3	0.5	Δ☆	
	HVC383B		15	C1 = 19.0 to 21.0, C4 = 8.5 to 10.0, C7 = 4.5 to 5.5		2.0 min	1/4	0.5	Δ☆	
						3.5 min	1/7			
	HVC385B		15	C0.5 = 7.20 to 7.70, C2.5 = 2.70 to 3.20		2.43 to 2.57	0.5/2.5	0.75	Δ☆	
	HVC386B		15	C1 = 43.0 to 49.0, C4 = 18.5 to 25.5		1.80 min	1/4	0.85	Δ☆	
	HVC396C	10	C1 = 14.5 to 17.5, C4 = 5.2 to 6.5		2.3 min	1/4	0.4	SPL		
	HVC397C	15	C1 = 27.0 to 28.5, C2 = 18.0 to 20.0, C4 = 6.8 to 8.5		1.3 min	1/2	1.2	SPL		
					2.9 min	1/4				
		SFP	HVD350B	15	C1 = 15.5 to 17.0, C4 = 5.0 to 6.0		2.8 min	1/4	0.5	Δ☆
	HVD355B		15	C1 = 6.4 to 7.2, C4 = 2.55 to 2.95		2.2 min	1/4	0.6	Δ☆	
	HVD358B		15	C1 = 19.5 to 21.0, C4 = 8.00 to 9.3		2.2 min	1/4	0.4	Δ☆	
	HVD359		15	C1 = 24.8 to 29.8, C4 = 6.0 to 8.3		3.0 min	1/4	1.5	Δ☆	
	HVD365		15	C1 = 27.05 to 28.55, C4 = 6.05 to 7.55		3.0 min	1/4	1.5	Δ☆	
	HVD368B		10	C1 = 15.0 to 16.5, C2 = 9.0 to 10.2, C3 = 5.0 to 6.0		2.2 min	1/3	1.1	Δ☆	
	HVD369B		15	C1 = 4.65 to 5.15, C4 = 1.85 to 2.15		2.3 min	1/4	0.5	Δ☆	
	HVD372B		15	C1 = 15.0 to 17.0, C4 = 7.0 to 8.5		2.0 min	1/4	0.4	Δ☆	
	HVD380B		15	C1 = 2.88 to 3.12, C3 = 1.66 to 1.795, C4 = 1.36 to 1.471		1.7 to 1.84	1/3	0.8	Δ☆	
						2.08 to 2.25	1/4			
	HVD381B		15	C1 = 10.0 to 11.0, C3 = 5.8 to 6.4		1.65 min	1/3	0.5	Δ☆	
	HVD385B		15	C0.5 = 7.20 to 7.70, C2.5 = 2.70 to 3.20		2.43 to 2.57	0.5/2.5	0.75	Δ☆	
	HVD396C		10	C1 = 14.5 to 17.5, C4 = 5.20 to 6.50		2.3 min	1/4	0.4	SPL	
	HVD397C		15	C1 = 27.0 to 28.5, C2 = 18.0 to 20.0, C4 = 6.8 to 8.5		1.3 min	1/2	1.2	SPL	
						2.9 min	1/4			
		EFP	HVL355B	15	C1 = 6.40 to 7.20, C4 = 2.55 to 2.95		2.2 min	1/4	0.6	SPL
	HVL358B		15	C1 = 19.5 to 21.0, C4 = 8.0 to 9.3		2.2 min	1/4	0.4	SPL	
	HVL385B		15	C0.5 = 7.20 to 7.70, C2.5 = 2.70 to 3.20		2.43 to 2.57	0.5/2.5	0.75	SPL	
	HVL388C		15	C1 = 3.00 to 3.50, C3 = 1.57 to 1.82		1.7 min	1/3	0.75	SPL	
	HVL396C		10	C1 = 14.5 to 17.5, C4 = 5.20 to 6.50		2.3 min	1/4	0.4	SPL	
	HVL397C		15	C1 = 27.0 to 28.5, C2 = 18.0 to 20.0, C4 = 6.8 to 8.5		1.3 min	1/2	1.2	SPL	
					2.9 min	1/4				
	CMPAK	HVB387BWK	15	C1 = 4.50 to 5.00, C3 = 1.85 to 2.80		1.8 to 2.6	1/3	1.20	Δ☆	
	CMPAK-4	HVB350BYP	15	C1 = 15.5 to 17.0, C4 = 5.0 to 6.0		2.8 min	1/4	0.5	O☆	

Notes: O: Mass production  
 SPL: Samples available  
 Δ: Can be mass produced  
 \*: Please contact our sales office

★: Large order device (Unit: 500 x N)  
 ☆: Taping only (Order unit, Those specified on P.16 x N.  
 For internal connection of MPAK, see P.18.)  
 ○S: Overseas sales only

## Variable Capacitance Diodes for Electronic Tuning

Application		Package	Type No.	Ratings	Characteristics				Status		
				V <sub>R</sub> (V)	C (pF)		n	C <sub>VR</sub> /C <sub>VR</sub>		r <sub>s</sub> (Ω) max	
BS/CS Tuner	Tuning	URP	HVU316	30	C1 = 5.16 to 7.22, C25 = 0.48 to 0.76		9.0 min	1/25	1.2	O☆	
			HVU417C <small>NEW</small>	30	C1 = 7.8 to 9.4, C25 = 0.5 to 0.6		13.0 min	1/25	1.5	SPL	
		UFP	HVC316	30	C1 = 5.16 to 7.22, C25 = 0.48 to 0.76		9.0 min	1/25	2.2	Δ☆	
			HVC317B	35	C1 = 9.00 to 11.50, C25 = 0.60 to 0.80		13.0min	1/25	1.6	O☆	
TV Tuner	UHF Tuning	URP	HVU202A	34	C2 = 14.11 to 16.47, C25 = 2.06 to 2.35		6.2 min	2/25	0.57	O☆	
			HVU202B	35 <sup>^</sup>	C2 = 14.15 to 15.75, C25 = 2.06 to 2.35		6.3 min	2/25	0.57	O☆	
		UFP	HVC202A	34	C2 = 14.11 to 16.47, C25 = 2.06 to 2.35		6.2 min	2/25	0.57	O☆	
			HVC202B	35 <sup>^</sup>	C2 = 14.15 to 15.75, C25 = 2.06 to 2.35		6.3 min	2/25	0.57	O☆	
	VHF Tuning	URP	HVU200A	32	C2 = 27.7 to 31.8, C25 = 2.67 to 3.03		10.0 min	2/25	0.7	O☆	
			HVU300A	32	C2 = 39.5 to 47.4, C25 = 2.6 to 3.03		14.5 min	2/25	1.10	O☆	
			HVU300B	34	C2 = 47.0 to 53.0, C25 = 2.65 to 3.00		17.0 min	2/25	1.1	O☆	
			HVU306A	32	C2 = 29.3 to 34.2, C25 = 2.57 to 2.92		11.0 min	2/25	0.75	O☆	
			HVU306B	34	C2 = 29.5 to 33.5, C25 = 2.60 to 2.90		11.0 min	2/25	0.75	O☆	
			HVU307	32	C2 = 32.2 to 37.5, C25 = 2.57 to 3.0		12.0 min	2/25	0.85	O☆	
			HVU363A	32	C1 = 34.65 to 42.35, C28 = 2.361 to 2.754		13.5 min	1/28	0.75	O☆	
			HVU363B	32	C1 = 36.0 to 42.0, C28 = 2.36 to 2.75		13.7 min	1/28	0.75	O☆	
		UFP	HVC200A	32	C2 = 27.7 to 31.8, C25 = 2.67 to 3.03		10.0 min	2/25	0.7	O☆	
			HVC300A	32	C2 = 39.5 to 47.4, C25 = 2.6 to 3.03		14.5 min	2/25	1.10	O☆	
			HVC300B	34	C2 = 47.0 to 53.0, C25 = 2.65 to 3.00		17.0 min	2/25	1.1	O☆	
			HVC306A	32	C2 = 29.3 to 34.2, C25 = 2.57 to 2.92		11.0 min	2/25	0.75	O☆	
			HVC306B	34	C2 = 29.5 to 33.5, C25 = 2.60 to 2.90		11.0 min	2/25	0.75	O☆	
			HVC307	32	C2 = 32.2 to 37.5, C25 = 2.57 to 3.00		12.0 min	2/25	0.85	O☆	
			HVC363A	32	C1 = 34.65 to 42.35, C28 = 2.361 to 2.754		13.5 min	1/28	0.75	*☆	
			HVC363B	32	C1 = 36.0 to 42.0, C28 = 2.36 to 2.75		13.7 min	1/28	0.75	Δ☆	
	FM Tuner	Tuning	UFP	HVC308A	35	C2 = 13.7 to 15.9, C20 = 1.65 to 2.06		7.12 min	2/20	0.95	O☆
				MPAK	HVM16	14	C2 = 43.0 to 48.1, C8 = 24.6 to 29.2		1.65 to 1.75	2/8	-
			CMPAK		HVM27WK	20	C1 = 52.0 to 62.0, C2 = 43.0 to 48.1, C8 = 24.0 to 28.0		1.8 min	1/8	0.4
				HVB27WK	15	C1 = 52.0 to 62.0, C2 = 43.0 to 48.0, C8 = 24.0 to 28.0		1.7 min	2/8	0.4	O☆
	AM Tuning	Tuning	SRP			HVR100	15	C1 = 421.5 to 524.6, C8 = 20.4 to 28.2		16 min	1/8

## High Frequency Switching Diodes

Application	Package	Type No.	Ratings			Characteristics							Status	
			V <sub>R</sub> (V)	I <sub>F</sub> (mA)	P <sub>d</sub> (mW)	V <sub>F</sub> (V) max	I <sub>F</sub> (mA)	C (pF) max	V <sub>R</sub> (V)	f (MHz)	r <sub>f</sub> (Ω) max	I <sub>F</sub> (mA)		f (MHz)
High frequency switching	MPAK	HSM2694	35	-	150	1.0	10	1.2	6	1	0.9	2	100	O☆
	URP	HSU277	35	-	150	1.0	10	1.2	6	1	0.7	2	100	O☆
	UFP	HSC277	35	-	150	1.0	10	1.2	6	1	0.7	2	100	O☆

Notes: O: Mass production

SPL: Samples available

Δ: Can be mass produced

\*: Please contact our sales office

★: Large order device (Unit: 500 x N)

☆: Taping only (Order unit, Those specified on P.16 x N.

For internal connection of MPAK, see P.18.)

OS: Overseas sales only

^: VRM, RL = 10kΩ

## PIN Diodes for Antenna Switching

Application	Package	Type No.	Ratings			Characteristics								Status
			VR (V)	IF (mA)	Pd (mW)	VF (V) max	IF (mA)	C (pF) max	VR (V)	f (MHz)	rf (Ω) max	IF (mA)	f (MHz)	
Antenna switching	URP	HVU131	60	100	150	1.0	10	0.8	1	1	1.0	10	100	O☆
		HVU132	60	100	150	1.0	10	0.5	1	1	2.0	10	100	O☆
		HVU133	30	-	150	0.85	2	1	1	1	0.7	2	100	O☆
		HVU145	60	50	150	0.9	2	0.45	1	1	1.8	10	100	SPL
	UFP	HVC131	60	100	150	1.0	10	0.8	1	1	1.0	10	100	O☆
		HVC132	60	100	150	1.0	10	0.5	1	1	2.0	10	100	O☆
		HVC133	30	-	150	0.85	2	1	1	1	0.7	2	100	O☆
		HVC142	30	100	150	1.0	10	0.35	1	1	1.5	10	100	*☆
		HVC142A	30	100	150	1.0	10	0.35	1	1	1.3	10	100	SPL
		HVC145	60	50	150	0.9	2	0.45	1	1	1.8	10	100	Δ☆
	SFP	HVD131	60	100	150	1.0	10	0.8	1	1	1.0	10	100	Δ☆
		HVD132	60	100	150	1.0	10	0.5	1	1	2.0	10	100	Δ☆
		HVD133	30	-	150	0.85	2	1	1	1	0.7	2	100	Δ☆
		HVD138A	30	100	150	0.9	2	0.85	1	1	1.1	2	100	SPL
		HVD141	30	100	150	1.0	10	0.82	1	1	0.8	10	100	O☆
		HVD142	30	100	150	1.0	10	0.35	1	1	1.5	10	100	*☆
		HVD142A	30	100	150	1.0	10	0.35	1	1	1.3	10	100	SPL
		HVD144	30	100	150	0.9	2	0.45	1	1	2.0	2	100	Δ☆
		HVD144A	30	100	150	0.9	2	0.43	1	1	1.8	2	100	SPL
		HVD145	60	50	150	0.9	2	0.45	1	1	1.8	10	100	Δ☆
	EFP	HVL138A	30	100	100	0.9	2	0.85	1	1	1.1	2	100	SPL
		HVL142	30	100	100	1.0	10	0.35	1	1	1.5	10	100	*
		HVL142A	30	100	100	1.0	10	0.35	1	1	1.3	10	100	SPL
		HVL144	30	100	100	0.9	2	0.45	1	1	2.0	2	100	*
		HVL144A	30	100	100	0.9	2	0.43	1	1	1.8	2	100	SPL
		HVL145	60	50	100	0.9	2	0.45	1	1	1.8	10	100	SPL

## PIN Diodes for Attenuators

Application	Package	Type No.	Ratings			Characteristics								Status
			VR (V)	IF (mA)	Pd (mW)	VF (V) max	IF (mA)	C (pF) max	VR (V)	f (MHz)	rf (Ω) max	IF (mA)	f (MHz)	
Attenuator	MPAK	HVM14	50	50	100	1	50	0.25 typ	50	1	7	10	100	O☆
		HVM14S	50	50	100	1	50	0.25 typ	50	1	7	10	100	O☆
		HVM14SR	50	50	100	1	50	0.25 typ	50	1	7	10	100	O☆
		HVM187S	60	50	100	1	10	2.4	0	1	5.5	10	100	O☆
		HVM187WK	60	50	100	1	10	2.4	0	1	5.5	10	100	O☆
		HVM189S	60	50	100	1	10	1.8	0	1	5.5	10	100	Δ☆
	UFP	HVC190	50	50	100	1	50	0.35	50	1	5	10	100	SPL
	URP	HVU187	60	50	100	1	10	2.4	0	1	5.5	10	100	O☆
	CMPAK	HVB14S	50	50	100	1	50	0.25 typ	50	1	7	10	100	O☆
		HVB190S	50	50	100	1	50	0.35	50	1	5	10	100	SPL
CMPAK-4	HVB187YP	60	50	100	1	10	2.4	0	1	5.5	10	100	Δ☆	

Notes: O: Mass production

SPL: Samples available

Δ: Can be mass produced

\*: Please contact our sales office

★: Large order device (Unit: 500 x N)

☆: Taping only (Order unit, Those specified on P.16 x N.

For internal connection of MPAK, see P.18.)

os: Overseas sales only

## Small Signal Diodes

Application	Package	Type No.	Ratings				Characteristics							Status
			V <sub>R</sub> (V)	I <sub>O</sub> (mA)	I <sub>FSM</sub> (A)	P <sub>d</sub> (mW)	V <sub>F</sub> (V) max	I <sub>F</sub> (mA)	t <sub>rr</sub> (ns) max	I <sub>F</sub> (mA)	C (pF) max	V <sub>R</sub> (V)	f (MHz)	
High speed switching	DO-35	1N4148	75	150	1	500	1.0	10	4.0	10	4.0	0	1	O★ <sup>OS</sup>
		1S2074(H)	45	150	0.6	250	0.8	10	4.0	10	3.0	1	1	O★
		1S2075(K)	30	100	0.6	250	0.8	10	8.0	10	3.5	1	1	O★
		1S2076	30	150	1	250	0.8	10	8.0	10	3.0	1	1	O★
		1S2076A	60	150	1	250	0.8	10	8.0	10	3.0	1	1	O★
	MHD	1SS119	30	150	1	250	0.8	10	3.5	10	3.0	1	1	O★
		1SS120	60	150	1	250	0.8	10	3.5	10	3.0	1	1	O★
		1SS270	30	150	1	250	0.8	10	3.5	10	3.0	1	1	O★
		1SS270A	60	150	1	250	0.8	10	3.5	10	3.0	1	1	O★
		HSS104	35	110	0.4	300	1.2	100	3.0	10	3.0	0.5	1	O★
	LLD	HSK120	60	150	4	-	0.8	10	3.0	10	3.0	0	1	Δ☆
		HSK4148	75	150	1	500	1.0	10	4.0	10	4.0	0	1	Δ★ <sup>OS</sup>
	MPAK	HSM123	80	100	4	-	1.2	100	3.0	10	4.0	0	1	Δ☆
		HSM124S	80	100	4	-	1.2	100	100	10	4.0	0	1	O☆
		HSM221C	80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆
		HSM223C	80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆
		HSM2836C	80	100	4	-	1.2	100	20	10	4.0	0	1	O☆
		HSM2838C	80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆
	URP	HSU119	80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆
	UFP	HSC119	80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆
	CMPAK	HSB123	80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆
		HSB124S	80	100	4	-	1.2	100	100	10	4.0	0	1	O☆
		HSB2836	80	100	4	-	1.2	100	20	10	4.0	0	1	O☆
HSB2838		80	100	4	-	1.2	100	3.0	10	2.0	0	1	O☆	
High voltage switching	DO-35	1SS81	150	200	1	400	1.0	100	100	30	1.5 typ	0	1	O★
		1SS82	200	200	1	400	1.0	100	100	30	1.5 typ	0	1	O★
		1SS83	250	200	1	400	1.0	100	100	30	1.5 typ	0	1	O★
	MHD	HSS81	150	150	1	400	1.0	100	100	30	1.5 typ	0	1	O★
		HSS82	200	150	1	400	1.0	100	100	30	1.5 typ	0	1	O★
		HSS83	250	150	1	400	1.0	100	100	30	1.5 typ	0	1	O★
	LLD	HSK83	250	150	1	-	1.0	100	100	30	1.5 typ	0	1	Δ☆
		HSK122	400	150	1	-	1.2	100	10μs	30	10	0	1	Δ☆
	MPAK	HSM83	250	100	2	-	1.2	100	100	30	3.0	0	1	O☆
	URP	HSU83	250	100	2	-	1.2	100	100	30	3.0	0	1	O☆
	CMPAK	HSB83	250	100	2	-	1.2	100	100	30	3.0	0	1	O☆
CMPAK-4	HSB83YP	250	100	2	-	1.2	100	100	30	3.0	0	1	O☆	

(H),(K) indicates high-reliability products.

Notes: O: Mass production

SPL: Samples available

Δ: Can be mass produced

\*: Please contact our sales office

★: Large order device (Unit: 500 x N)

☆: Taping only (Order unit, Those specified on P.16 x N.)

For internal connection of MPAK, see P.18.)

<sup>OS</sup>: Overseas sales only

## Schottky Barrier Diodes for Detectors and Mixers

Application	Package	Type No.	Ratings		Characteristics						Status		
			V <sub>R</sub> [VRRM] (V)	I <sub>O</sub> [IF] (mA)	I <sub>F</sub> (mA) min	V <sub>F</sub> (V)	V <sub>F</sub> (V) max	I <sub>F</sub> (mA)	C (pF) max	V <sub>R</sub> (V)		f (MHz)	
Detector and mixer	DO-35	1SS86	3	30	8	0.5	-	-	0.85	0.5	1	O★	
		1SS88	10	15	-	-	0.43	1	0.97	0	1	O★	
		1SS106	10	30	4.5	1.0	-	-	1.5	1	1	O★	
	MHD	1SS198	10	30	4.5	1.0	-	-	1.5	1	1	O★	
		1SS286	25	[35]	-	-	0.6	10	1.2	0	1	O★	
	URP	HSU88	10	15	-	-	0.42	1	0.8	0	1	O☆	
		HSU227	[25]	50	-	-	0.35	1	3.0	1	1	O☆	
		HSU276	3	30	35	0.5	-	-	0.85	0.5	1	O☆	
	URP	HSU276A	[5]	30	35	0.5	-	-	0.85	0.5	1	O☆	
		UFP	HSC88	10	15	-	-	0.42	1	0.8	0	1	O☆
			HSC226	[25]	[50]	-	-	0.33	1	2.8	1	1	O☆
	HSC276		3	30	35	0.5	-	-	0.85	0.5	1	O☆	
	HSC276A		[5]	30	35	0.5	-	-	0.85	0.5	1	O☆	
	UFP	HSC278	30	30	-	-	0.3	1	1.5	1	1	O☆	
		SFP	HSD88	10	15	-	-	0.42	1	0.8	0	1	O☆
			HSD226	[25]	[50]	-	-	0.33	1	2.8	1	1	SPL
	HSD276A		[5]	30	35	0.5	-	-	0.85	0.5	1	O☆	
	HSD278		30	30	-	-	0.3	1	1.5	1	1	O☆	
	MPAK	HSM88AS	10	15	-	-	0.42	1	0.85	0	1	O☆	
		HSM88ASR	10	15	-	-	0.42	1	0.85	0	1	O☆	
		HSM88WA	10	15	-	-	0.42	1	0.85	0	1	O☆	
		HSM88WK	10	15	-	-	0.42	1	0.85	0	1	O☆	
		HSM198S	10	30	4.5	1.0	-	-	1.5	1	1	O☆	
		HSM276AS	[5]	30	35	0.5	-	-	0.9	0.5	1	O☆	
		HSM276ASR	[5]	30	35	0.5	-	-	0.9	0.5	1	O☆	
		HSM276S	3	30	35	0.5	-	-	0.9	0.5	1	O☆	
		HSM276SR	3	30	35	0.5	-	-	0.9	0.5	1	O☆	
		CMPAK	HSB226S	[25]	[50]	-	-	0.33	1	2.8	1	1	O☆
	HSB226WK		[25]	[50]	-	-	0.33	1	2.8	1	1	O☆	
	HSB276S		3	30	35	0.5	-	-	0.9	0.5	1	O☆	
	HSB276AS		[5]	30	35	0.5	-	-	0.9	0.5	1	O☆	
	HSB278S		30	30	-	-	0.3	1	1.5	1	1	O☆	
	HSB88AS		10	15	-	-	0.42	1	0.8	0	1	O☆	
	HSB88WA		10	15	-	-	0.42	1	0.8	0	1	O☆	
	HSB88WK		10	15	-	-	0.42	1	0.8	0	1	O☆	
	CMPAK-4	HSB0104YP	[40]	[100]	-	-	0.58	100	20typ	0	1	O☆	
		HSB226YP	[25]	[50]	-	-	0.33	1	2.8	1	1	O☆	
		HSB88YP	10	15	-	-	0.42	1	0.8	0	1	O☆	
		HSB276AYP	[5]	30	35	0.5	-	-	0.85	0.5	1	O☆	
	MFPAK	HSN278WK	NEW	30	30	-	-	0.3	1	1.5	1	1	SPL
	MOP	HSB88WS	10	15	-	-	0.435	1	0.85	0	1	O☆	

## Schottky Barrier Diodes for High Speed Switching

Application	Package	Type No.	Elements S: Single D: Double	Ratings		Characteristics				Status
				VRRM (V)	I <sub>O</sub> [IF] (A)	V <sub>F</sub> (V) max	I <sub>F</sub> (A)	I <sub>R</sub> (mA) max	V <sub>R</sub> (V)	
High speed switching	MPAK	HRW0202A	D	20	0.2	0.40	0.1	0.05	20	O☆
		HRW0202B	D	20	0.2	0.42	0.1	0.01	20	O☆
		HRW0203A	S	30	0.2	0.50	0.2	0.05	30	O☆
		HRW0203B	S	30	0.2	0.50	0.2	0.05	30	O☆
		HRW0302A	S	20	0.3	0.40	0.3	0.1	20	O☆
		HRW0502A	S	20	0.5	0.40	0.5	0.2	20	O☆
		HRW0503A	S	30	0.5	0.55	0.5	0.05	30	O☆
		HRW0702A	S	20	[0.7]	0.43	0.7	0.2	20	O☆
		HRW0703A	S	30	[0.7]	0.50	0.7	0.1	30	O☆
	URP	HRU0103A	S	30	0.1	0.44	0.1	0.05	30	O☆
		HRU0203A	S	30	0.2	0.50	0.2	0.05	30	O☆
		HRU0302A	S	20	0.3	0.40	0.3	0.1	20	O☆
	UFP	HRC0103A	S	30	0.1	0.44	0.1	0.05	30	O☆
		HRC0203B	S	30	0.2	0.52	0.2	0.01	30	O☆
		HRC0203C	S	30	0.2	0.45	0.2	0.03	10	O☆
	CMPAK	HRB0103A	S	30	0.1	0.44	0.1	0.05	30	O☆
		HRB0103B	D	30	0.1	0.44	0.1	0.05	30	O☆
		HRB0502A	S	20	0.5	0.40	0.5	0.2	20	O☆
		HRC0202A	D	20	0.2	0.40	0.1	0.05	20	O☆

Notes: O: Mass production

SPL: Samples available

Δ: Can be mass produced

\*: Please contact our sales office

★: Large order device (Unit: 500 x N)

☆: Taping only (Order unit, Those specified on P.16 x N.)

For internal connection of MPAK, see P.18.)

os: Overseas sales only

\*: High reliability



## System Protection Diodes

Application	Package	Type No.	Ratings			Characteristics				Status
			V <sub>R</sub> [VRRM] (V)	I <sub>o</sub> (mA)	I <sub>FSM</sub> (A)	V <sub>F</sub> (V) max	I <sub>F</sub> (mA)	I <sub>R</sub> (μA) max	V <sub>R</sub> (V)	
System protection	MPAK	HSM107S	8	50	0.5	0.3	10	30	5	O☆
		HSM126S	[20]	200	2	0.35	10	2	5	O☆

## Surge Absorption Diodes

Application	Package	Type No.	Ratings		Characteristics				Status			
			P <sub>d</sub> (mW)	V <sub>Z</sub> (V)	I <sub>Z</sub> (mA)	C (pF) max	V <sub>R</sub> (V)	ESD (kV) min				
Surge absorption	UFP	HZC2.0	NEW	150	1.90 to 2.20	5	-	-	30	*		
		HZC2.2	NEW	150	2.10 to 2.40	5	-	-	30	*		
		HZC2.4	NEW	150	2.30 to 2.60	5	-	-	30	*		
		HZC2.7	NEW	150	2.50 to 2.90	5	-	-	30	*		
		HZC3.0	NEW	150	2.80 to 3.20	5	-	-	30	*		
		HZC3.3	NEW	150	3.10 to 3.50	5	-	-	30	*		
		HZC3.6	NEW	150	3.40 to 3.80	5	-	-	30	*		
		HZC3.9	NEW	150	3.70 to 4.10	5	-	-	30	*		
		HZC4.3	NEW	150	4.01 to 4.48	5	-	-	30	*		
		HZC4.7	NEW	150	4.42 to 4.90	5	-	-	30	*		
		HZC5.1		150	4.84 to 5.37	5	-	-	30	Δ☆		
		HZC5.6		150	5.31 to 5.92	5	-	-	30	Δ☆		
		HZC6.2		150	5.86 to 6.53	5	-	-	30	Δ☆		
		HZC6.8		150	6.47 to 7.14	5	-	-	30	Δ☆		
		HZC7.5	NEW	150	7.06 to 7.84	5	-	-	30	SPL		
		HZC8.2		150	7.76 to 8.64	5	-	-	30	Δ☆		
		HZC9.1	NEW	150	8.56 to 9.55	5	-	-	30	SPL		
		HZC10	NEW	150	9.45 to 10.55	5	-	-	30	SPL		
		HZC11	NEW	150	10.44 to 11.56	5	-	-	30	SPL		
		HZC12	NEW	150	11.42 to 12.60	5	-	-	30	SPL		
		HZC13	NEW	150	12.47 to 13.96	5	-	-	30	SPL		
		HZC15		150	13.84 to 15.52	5	-	-	30	SPL		
		HZC16		150	15.37 to 17.09	5	-	-	30	Δ☆		
		HZC18	NEW	150	16.94 to 19.03	5	-	-	30	*		
		HZC20	NEW	150	18.86 to 21.08	5	-	-	30	*		
		HZC22	NEW	150	20.88 to 23.17	5	-	-	30	*		
		HZC24	NEW	150	22.93 to 25.57	5	-	-	30	*		
		HZC27	NEW	150	25.10 to 28.90	2	-	-	30	*		
		HZC30	NEW	150	28.00 to 32.00	2	-	-	30	*		
		HZC33	NEW	150	31.00 to 35.00	2	-	-	25	*		
		HZC36	NEW	150	34.00 to 38.00	2	-	-	20	*		
			URP	HZU5.6Z*		200	5.31 to 5.92	5	8.5	0	8	O☆
				HZU6.2Z*		200	5.9 to 6.5	5	8.5	0	-	O☆
				HZU6.8Z*		200	6.47 to 7.0	5	25	0	20	O☆
				HZU5.1G		200	4.84 to 5.37	5	-	-	30	O☆
				HZU5.6G		200	5.31 to 5.92	5	-	-	30	O☆
	HZU6.2G			200	5.86 to 6.53	5	-	-	30	O☆		
	HZU6.8G			200	6.47 to 7.14	5	-	-	30	O☆		
	HZU7.5G			200	7.06 to 7.84	5	-	-	30	O☆		
	HZU8.2G			200	7.76 to 8.64	5	-	-	30	O☆		
	HZU9.1G			200	8.56 to 9.55	5	-	-	30	O☆		
	HZU10G		200	9.45 to 10.55	5	-	-	30	O☆			
	MPAK	HZM3.3WA		200	3.10 to 3.50	5	-	-	30	O☆		
		HZM6.2ZMWA*		200	5.9 to 6.5	5	8.5	0	13	Δ☆		
		HZM6.8ZMWA*		200	6.47 to 7.0	5	25	0	20	O☆		
		HZM6.8MWA		200	6.47 to 7.0	5	130	0	30	O☆		
		HZM27WA		200	25.1 to 28.9	2	(27)	0	30	O☆		
	MPAK-5	HZM4.3FA		200	4.01 to 4.48	5	150	0	30	O☆		
		HZM5.6ZFA*		200	5.31 to 5.92	5	8.5	0	8	O☆		
		HZM6.2ZMFA*		200	5.9 to 6.5	5	8.5	0	13	Δ☆		
		HZM6.8ZMFA*		200	6.47 to 7.0	5	25	0	25	O☆		
		HZM6.8MFA		200	6.47 to 7.0	5	130	0	30	O☆		
		HZM7.5FA		200	7.06 to 7.84	5	125	0	30	O☆		
		HZM27FA		200	25.1 to 28.9	2	(27)	0	30	O☆		
		CMPAK	HZB6.8MWA		200	6.47 to 7.0	5	130	0	30	O☆	
	CMPAK-5	HZB5.6MFA		200	5.31 to 5.92	5	(110)	0	30	Δ☆		
		HZB6.8ZMFA*		200	6.47 to 7.0	5	25	0	25	O☆		
	VSON-5	HZN6.8ZMFA		150	6.47 to 7.0	5	25	0	25	Δ☆		

( ) Typ value Reference value

Notes: O: Mass production  
 SPL: Samples available  
 Δ: Can be mass produced  
 \*: Please contact our sales office  
 ★: Large order device (Unit: 500 x N)

☆: Taping only (Order unit, Those specified on P.16 x N.  
 For internal connection of MPAK, see P.18.)  
 OS: Overseas sales only  
 \*: Low capacitance

## Zener Diodes for Temperature Compensation

Application	Package	Type No.	Ratings		Characteristics				Status	
			Pd (mW) Value at Ta=75°	Topt (°C)	Vz (V)	Iz (mA)	•z (mV/°) Typ	Topt (°C)		
Temperature compensation	DO-35	HZT33	200	-20 to +75	31.0 to 35.0	5	1 (Absolute Value)	5	-20 to +25 to +75	O★

## Zener Diodes for Stabilized Power Supply

Application	Package	Type No.	Ratings		Characteristics		Status
			Pd (mW)	Vz (V)	Iz (mA)	Iz (mA)	
General	DO-35	HZ Series	500	1.6 to 38.0	5 to 2	O★	
		HZ(H) Series	500	1.6 to 38.0	5 to 2	O★	
	MHD	HZS Series	400	1.6 to 38.0	5 to 2	O★	
		HZS-N Series	400	1.88 to 38.52	5	O★	
	LLD	HZK Series	500	1.9 to 38.0	5 to 2	Δ☆	
	MPAK	HZM-N Series	200	1.9 to 38.0	5 to 2	O☆	
	URP	HZU Series	200	1.9 to 38.0	5 to 2	O☆	
Low noise	DO-35	HZ-L Series	400	5.2 to 38.0	0.5	O★	

(H) indicates high-reliability products.

Notes: O: Mass Production  
 SPL: Samples available  
 Δ: Can be mass produced  
 \*: Please contact our sales office

Application	Package	Type No.	Ratings		Characteristics		Status
			Pd (mW)	Vz (V)	Iz (mA)	Iz (mA)	
Low noise	DO-35	HZ-LL Series	250	1.6 to 5.3	0.5	O★	
		MHD	HZS-L Series	400	5.2 to 38.0	0.5	O★
	LLD	HZS-LL Series	250	1.6 to 5.3	0.5	O★	
		HZK-L Series	400	5.2 to 38.0	0.5	Δ☆	
	URP	HZK-LL Series	250	1.6 to 5.3	0.5	Δ☆	
		HZU-L Series	150	5.2 to 38.0	0.5	SPL	
High power	DO-41	HZ-P Series	1000	1.88 to 40.0	40-10	O★	

★: Large order device (Unit: 500 x N)  
 ☆: Taping only (Order unit, Those specified on P.16 x N.  
 For internal connection of MPAK, see P.18.)  
 os: Overseas sales only

Series	HZUxxLL		HZxxLL HZKxxLL		HZSxx		HZxxL HZKxxL		HZxx HZxx(H) HZKxx [HZUxxL]		Spec. Vz (V) min max	
	Pd (mW)		Pd (mW)		Pd (mW)		Pd (mW)		Pd (mW)			
	150	250	250	400	400	500	500	500	500	500		
Classification	2	2	2	-	2	A	1.6	2.0	2	A	1.6	2.0
						B	1.9	2.3		B	1.9	2.3
						C	2.2	2.6		C	2.2	2.6
	3	3	3	-	3	A	2.5	2.9	3	A	2.5	2.9
						B	2.8	3.2		B	2.8	3.2
						C	3.1	3.5		C	3.1	3.5
	4	4	4	-	4	A	3.4	3.8	4	A	3.4	3.8
						B	3.7	4.1		B	3.7	4.1
						C	4.0	4.4		C	4.0	4.4
	5	5	5	-	5	A	4.3	4.7	5	A	4.3	4.7
						B	4.6	5.0		B	4.6	5.0
						C	4.9	5.3		C	4.9	5.3
	-	-	6	6	6	A	5.2	5.7	6	A	5.2	5.7
						B	5.5	6.0		B	5.5	6.0
						C	5.8	6.4		C	5.8	6.4
	-	-	7	7	7	A	6.3	6.9	7	A	6.3	6.9
						B	6.7	7.3		B	6.7	7.3
						C	7.2	7.9		C	7.2	7.9
	-	-	9	9	9	A	7.7	8.5	9	A	7.7	8.5
						B	8.3	9.1		B	8.3	9.1
						C	8.9	9.7		C	8.9	9.7
	-	-	11	11	11	A	9.5	10.3	11	A	9.5	10.3
						B	10.2	11.1		B	10.2	11.1
						C	10.9	11.9		C	10.9	11.9
-	-	12	12	12	A	11.6	12.7	12	A	11.6	12.7	
					B	12.4	13.4		B	12.4	13.4	
					C	13.2	14.3		C	13.2	14.3	
-	-	15	15	15	-	14.1	15.5	15	-	14.1	15.5	
					-	15.3	17.1		-	15.3	17.1	
					-	16.9	19.0		-	16.9	19.0	
-	-	20	20	20	-	18.8	21.1	20	-	18.8	21.1	
					-	20.9	23.3		-	20.9	23.3	
					-	22.9	25.5		-	22.9	25.5	
-	-	24	24	24	-	22.9	25.5	24	-	22.9	25.5	
					-	25.2	28.6		-	25.2	28.6	
					-	28.2	31.6		-	28.2	31.6	
-	-	33	33	33	-	31.2	34.6	33	-	31.2	34.6	
					-	34.2	38.0		-	34.2	38.0	

Zener diodes have grades divided by zener voltage.  
 For details see databook.

## Zener Diodes for Stabilized Power Supply

Application	Package	Type No.	Ratings	Characteristics		Status
			Pd (mW)	Vz (V)	Iz (mA)	
General	DO-41	1N47xx Series	1000	3.3±5 (%) to 36±5 (%)	76 to 7.0	O★ <sup>OS</sup>
	DO-35	1N52xx Series	500	2.7±5 (%) to 36±5 (%)	20 to 3.4	O★ <sup>OS</sup>

Notes: O: Mass Production

SPL: Samples available

Δ: Can be mass produced

\*: Please contact our sales office

★: Large order device (Unit: 500 x N)

☆: Taping only (Order unit, Those specified on P.16 x N.)

For internal connection of MPAK, see P.18.)

<sup>OS</sup>: Overseas sales only

Type No	Spec.	Pd (mW)
	Vz(V)	
	max	
1N4728A	3.3 ± 5 (%)	1000
1N4729A	3.6 ± 5 (%)	
1N4730A	3.9 ± 5 (%)	
1N4731A	4.3 ± 5 (%)	
1N4732A	4.7 ± 5 (%)	
1N4733A	5.1 ± 5 (%)	
1N4734A	5.6 ± 5 (%)	
1N4735A	6.2 ± 5 (%)	
1N4736A	6.8 ± 5 (%)	
1N4737A	7.5 ± 5 (%)	
1N4738A	8.2 ± 5 (%)	
1N4739A	9.1 ± 5 (%)	
1N4740A	10 ± 5 (%)	
1N4741A	11 ± 5 (%)	
1N4742A	12 ± 5 (%)	
1N4743A	13 ± 5 (%)	
1N4744A	15 ± 5 (%)	
1N4745A	16 ± 5 (%)	
1N4746A	18 ± 5 (%)	
1N4747A	20 ± 5 (%)	
1N4748A	22 ± 5 (%)	
1N4749A	24 ± 5 (%)	
1N4750A	27 ± 5 (%)	
1N4751A	30 ± 5 (%)	
1N4752A	33 ± 5 (%)	
1N4753A	36 ± 5 (%)	

Type No	Spec.	Pd (mW)
	Vz(V)	
	max	
1N5223B	2.7 ± 5 (%)	500
1N5224B	2.8 ± 5 (%)	
1N5225B	3.0 ± 5 (%)	
1N5226B	3.3 ± 5 (%)	
1N5227B	3.6 ± 5 (%)	
1N5228B	3.9 ± 5 (%)	
1N5229B	4.3 ± 5 (%)	
1N5230B	4.7 ± 5 (%)	
1N5231B	5.1 ± 5 (%)	
1N5232B	5.6 ± 5 (%)	
1N5233B	6.0 ± 5 (%)	
1N5234B	6.2 ± 5 (%)	
1N5235B	6.8 ± 5 (%)	
1N5236B	7.5 ± 5 (%)	
1N5237B	8.2 ± 5 (%)	
1N5238B	8.7 ± 5 (%)	
1N5239B	9.1 ± 5 (%)	
1N5240B	10 ± 5 (%)	
1N5241B	11 ± 5 (%)	
1N5242B	12 ± 5 (%)	
1N5243B	13 ± 5 (%)	
1N5244B	14 ± 5 (%)	
1N5245B	15 ± 5 (%)	
1N5246B	16 ± 5 (%)	
1N5247B	17 ± 5 (%)	
1N5248B	18 ± 5 (%)	
1N5249B	19 ± 5 (%)	
1N5250B	20 ± 5 (%)	
1N5251B	22 ± 5 (%)	
1N5252B	24 ± 5 (%)	
1N5253B	25 ± 5 (%)	
1N5254B	27 ± 5 (%)	
1N5255B	28 ± 5 (%)	
1N5256B	30 ± 5 (%)	
1N5257B	33 ± 5 (%)	
1N5258B	36 ± 5 (%)	

\*: (Low Capacitance) **Cross Reference**

• **Switching Diodes**

Package	Maker	TOSHIBA	NEC	MATSUSHITA	ROHM	PHILIPS	HITACHI
DO-35		1S1555, 1S1588 1SS104	1S953	MA150	1S2472, 1S2473 1S2787		1S2076
		1S1553, 1S1554		MA161	1S2471, 1SS41		1S2076A
					1SS144		1SS81
					1SS143		1SS82
					1SS142, 1SS245		1SS83
MHD		1SS176	1SS202		1SS132, 1SS133 1SS134, 1SS210 1SS211, 1SS253 1SS254		1SS270, 1SS119
		1SS178, 1SS177	1SS202(1)	MA165, MA166, MA167	1SS130, 1SS131 1SS209, 1SS252		1SS270A, 1SS120
LLD		DLS1585, DLS1586		MA221  MA222  MA223	RLS71, RSL72 RLS139, RLS140 RLS73, RLS92 RLS141 RLS593, RLS94		HSK120
					RLS245, ISS376		HSK83
MPAK		1SS181	1S2835, 1S2836	MA3X152D MA151WA MA152WA	DAP202K	PMBD2836	HSM2836C
		1SS336					
		1SS184	1S2837, 1S2838	MA3X152E MA151WK MA152WK	DAN202K	PMBD2838	HSM2838C
		1SS337					
		1SS250		MA3X199 MA3X158			HSM83
		1SS226	1SS123	MA157, MA157A MA3X153 MA3X153A MA3X157A	DA323K, DA204K DA223K, DA228K DAN217		HSM123
		1SS379		MA3X198	DA204K DA228K		HSM124S
1SS193, 1SS307	1SS220, 1SS221	MA151K, MA152K MA3X152K	DAN212K		HSM221C		
ISS187	1SS222, 1SS223	MA151A, MA152A MA3X152A	DA116		HSM223C		
CMPAK		1SS370, 1SS397					HSB83
		1SS300		MA3J142D	DAP202U	IPS300	HSB2836
		1SS361, 1SS301		MA3J142E	DAP222, DAN202U	IPS301	HSB2838
		1SS302		MA3J147	DAN217U	IPS302	HSB123
			MA3J143 MA3J143A	DA228U		HSB124S	
CMPAK-4		1SS382				HSB83YP	
URP		1SS403		MA2Z001			HSU83
		1SS352		MA2J111/112/113/116	1SS353, 1SS355		HSU119
UFP		1SS387		MA2S111 MA2S132K	1SS400, 1SS380		HSC119

• **Zener Diodes**

Classification	Pd(mW)	Package	TOSHIBA	NEC	MATSUSHITA	ROHM	MOTOROLA	HITACHI
General	150 to 200	MPAK	02CZ Series	RD-M Series	MAZ3000/9000 Series		MMA3000	HZM-N Series
		URP	02DZ Series	RD-S Series	MAZ8000 Series	UDZ Series		HZU Series
	400	MHD	04AZ Series					HZS Series
				RD-ES Series		MTZJ Series		HZS-N Series
		LLD		RD-L Series	MAZ6000 Series	RLZ Series		HZK Series
500	DO-35	05AZ Series	RD-E Series	MAZ1000 Series			HZ Series	
800	DO-41	1AZ Series	RD-F Series	MAZ2000 Series		MZP Series	HZ-P Series	
Low noise	400	LLD		RD-K Series				HZK-L Series
		MHD	04BZ Series					HZS-L Series
				RD-JS Series				
Low voltage Low noise	250	MHD	04DZ Series	RD-HS Series				HZ-L Series
		DO-35						HZS-LL Series
	150	URP						HZ-LL Series

• **Surge Absorption Zener Diodes**

Classification	Package	TOSHIBA	NEC	MATSUSHITA	ROHM	HITACHI
ESD	MPAK		NNCD-E/F/MF	MAZC062D		HZM-WA/ZWA
	MPAK-5	DF5A-F/LF	NNCD-G/LG/MG	MAZL000H	FTZ-E	HZM-FA/ZFA
	CMPAK	DF3A-Fu/LFu			UMZ-N	HZB-MWA
	CMPAK5	DF5A-Fu/LFu	NNCD-LH		UMZ-EN	HZB-ZMFA
	URP		NNCD-D			HZU-G/Z
	UFP		MNCD-C	MAZS Series		HZC Series

## Cross Reference

### •Diodes for High Frequency

Application	Package	TOSHIBA	MATSUSHITA	INFINEON	PHILIPS	Others	HITACHI	
VCO	URP	1SV270					HVU350B	
			MA377				HVU355B	
			MA304				HVU359	
		1SV277					HVU369B	
					BB156		HVU383B	
	UFP	1SV281						HVC350B
		1SV280/285/239	MA2S376					HVC355B
		1SV293/279/281	MA2S331/MA332					HVC358B
			MA2S304					HVC359
								HVC362
		1SV313/314						HVC366
			MA2SV01					HVC368B
		1SV285/329/277						HVC369B
			MA2SV07					HVC380B
		MA2SV04					HVC381B	
				BB156		HVC383B		
SFP		MA2SV01					HVD368B	
	1SV135	MA2SV01					HVD372B	
UHF/VHF ET	URP	1SV214/1SV254	MA360/372/369	BB535		ROHM ITT	1SV223 BB721S/723S	HVU202A
		1SV214/215/216	MA360/342	BB545		ROHM ITT	1SV223 BB723S	HVU202B
	UFP	1SV278	MA2S372	BB555	BB179			HVC202A
		1SV286	MA2S367	BB565				HVC202B
VHF Wide band CATV ET	URP	1SV215/232	MA366	BB639	BB133	ITT	BB729S	HVU200A
		1SV238/1SV269	MA366C/355/357	BB644		ITT	BB730S	HVU306A
			MA357					HVU306B
		1SV217/221	MA371/356					HVU307
		1SV231/288/299/300	(MA337/365)/374			ITT	BB731S	HVU300A
		1SV302						HVU300B
							HVU363A	
							HVU363B	
	UFP	1SV290/301						HVC300A
		1SV303						HVC300B
							ITT	BB730S
								HVC363A
								HVC363B
	1SV283	MA2S357	BB664				HVC306A	
	1SV282				ITT	BB730S	HVC306B	
	1SV217/221	MA371/356					HVC307	
UHF/SHF ET	URP	1SV258/287/291	MA368/370		BB813/833	ITT	BB701S	HVU316
	UFP				BB813/833			HVC316 (HVC317B)
FM ET	MPAK	1SV225/228				ITT	BB404A-E	HVM27WK
						SANYO	SVC212/252/217	
				BB804	BB804	TOKO SANYO	KV1440 SVC203/253/208	HVM16
AM ET	SRP				BB112	ITT	BB510	HVR100

## Cross Reference

### •Diodes for High Frequency

Application	Package	TOSHIBA	MATSUSHITA	Others	HITACHI		
Band SW	MPAK	1SS269	MA57WA	ROHM	DAP236K	HSM2694	
	UFP	1SS381	MA2S077	ROHM	1SS390	HSC277	
	URP	1SS314	MA77	ROHM	1SS356	HSU277	
Mixer	SFP			ROHM	RB520G-30	HSD226	
		JDH2S01T		ROHM	RB876G	HSD276A	
	UFP	1SS389, 1SS388	MA2S728	ROHM	RB751S-40	HSC226	
		JDH2S01T				HSC276A	
	URP		MA2S728	ROHM	RB751S-40	HSC278	
		1SS315	MA2J728	ROHM	RB751V-40	HSU227	
	MPAK			HP	HSMS-2812/2822	HSM88AS	
				HP	HSMS2813/2823	HSM88WA	
			MA3X704D/717D	HP	HSMS2814/2824	HSM88WK	
			MA3X704E/717E	HP	HSMS2814/2824	HSM88WK	
			1SS271	MA3X716/715	ROHM	RB706D-40	HSM198S
						HSM276AS	
			1SS295		HP	HSMS-2822	HSM276AS
	CMPAK		MA3J742	HP	HSMS281C/282C	HSB226S	
			MA3J741E MA3J745E	HP ROHM	HSMS281F/282F RB715F	HSB226WK	
				SANYO	SB007-W03C		
				HP	HSMS285C	HSB276S	
				HP	HSMS285C	HSB276AS	
			MA3J742			HSB278S	
				HP	HSMS281C/282C	HSB88AS	
			MA3J741D/745D	HP ROHM	HSMS281E/282E RB717F	HSB88WA	
				HP ROHM	HSMS281F/282F RB705D	HSB88WK	
CMPAK-4	1SS383, 1SS384	MA4ZD03/14	ROHM	RB480K, RB481K	HSB0104YP		
	1SS402		SIEMENS HP	BAT62-07W HSMS281K/282K	HSB226YP		
			HP SIEMENS	HSM282K BAT62-07W	HSB88YP		
Antenna switching	URP	JDP2S01U				HVU131	
		1SV307				HVU132	
		1SV307					HVU145
	UFP	JDP2S01T	MA2SP01	INFINEON	BAR67-02V	HVC131	
		1SV308	MA2SP02	ROHM	RN142S	HVC132	
		JDP2S02T					
				INFINEON	BAR65-02V	HVC133	
		JDP2S02T				HVC142	
		JDP2S02T				HVC142A	
		1SV308 JDP2S02T	MA2SP02	ROHM	RN142S	HVC145	
	SFP	JDP2S01S	MA27P01			HVD131	
		JDP2S02S	MA27P02	ROHM	RN142G	HVD132	
				INFINEON	BAR63-02V	HVD138A	
		JDP2S01S	MA27P01			HVD141	
		JDP2S02S		ROHM	RN142G	HVD142	
		JDP2S02S		ROHM	RN142G	HVD142A	
		JDP2S02S	MA27P02	ROHM	RN142G	HVD145	
	EFP			INFINEON	BAR63-02L	HVL138A	
				INFINEON	BAR89-02L	HVL142	
				INFINEON	BAR89-02L	HVL142A	
Attenuator	MPAK	1SV128	MA551	SANYO	1SV233/298	HVM14	
		1SV172	MA555	SANYO	1SV234/316	HVM14S	
				ROHM	RN719D	HVM187S	
	CMPAK			SANYO	1SV315	HVB14S	

Note: See datasheet for details.

## Cross Reference

### • Schottky Barrier Diodes for Switching Power Supply

Package \ Maker	FAIRCHILD	On Semi	TOSHIBA	MATSUSHITA	SANYO	ROHM	HITACHI
MPAK			1SS377		SB02-03Q	RB425D	HRW0202A
			1SS392	MA740 MA3X786E MA3X721E	SB02-03C		HRW0202B
	BAT54	BAT54L		MA3X721/ 787/788	SB02-03S		HRW0203A
				MA3XD17			HRW0302A
			1SS344	MA3X703 MA3X748	SB05-05CP	RB411D RB401	HRW0502A
				MA3X720 MAX789	SB05-03C/Q SB05-05CP/P	RB400D RB411D	HRW0503A
	MMBD301	MMBD301		MA3X701	SB007-03C/P/N		HRW0703A
CMPAK			1SS349	MA10703	SB007-015C		HRW0702A
			1SS395 1SS322	MA3Z792		RB450F RB451F	HRB0103A
			1SS372	MA3Z793			HRB0103B
			1SS401	MA3J702/ 700/744		RB461F	HRB0502A
CMPAK-4					RB501V-40	(HSB0104YP)	
UFP			1SS388	MA2S784			HRC0103A
				MA2SD25 MA2SD19		RB520S-30 RB521S-30	HRC0203B
			1SS389	MA2SD19 MA2SD25		RB521S-30 RB501V-40	HRC0203C
URP			1SS367/373 1SS357	MA784 MA2Z714 MA2Z784		RB501H RB500V-40 RB501V-40	HRU0103A
		BAT54H		MA2J704 MA2J729			HRU0203A
			1SS404	MA2Z748			HRU0302A

Note: See datasheet for details.

## Package Cross Reference

HITACHI	MATSUSHITA	NEC	ROHM	TOSHIBA	SONY	PHILIPS	SIEMENS	EIAJ	JEDEC
DO-41	DO-41	DO-41	GSR	DO-41		SOD66(DO-41)		SC-47	DO-41
DO-41Mod			MSR	DD-41SS		SOD68			
DO-35	DO-35	DO-35	GSD	DO-35		SOD27(DO-35)		SC-48	DO-35
MHD	DO-34	DO-34	MSD	DO-34		DO-34			DO-34
LLD	Leadless	Leadless	LLDS(LL-34)	Leadless		SOD80C			
MPAK	Mini 3P	3Pin Mini Mold	SSD3/SMD3	S-MINI(SC-59)		SC59	SOT-23	SOT-23/SC-59A	TO-236Mod
MPAK-5	Mini 5P		SMD5	SMV				SC-74A	
CMPAK	S Mini 3P	3Pin Small Mini Mold	UMD3	USM		SOT323		SOT-323/SC-70	
CMPAK-4	S Mini 4P		UMD4	USQ				SC-82	
CMPAK-5	S Mini SP		UMD5	USV				SC-88	
MFPAK		3Pin Thin Ultra Super		TESM					
SRP	Mini 2P			S-FLAT	Mini mold(M-205)	SOD123	SOD-123		
URP	S Mini 2P	2Pin Small Mini Mold	UMD2(SOD-323)	USC	SMVC(M-235)	SOD323	SOD-323		
UFP(1608)	SS Mini 2P	2Pin Ultra Small Mini Mold	EMD2	ESC	SSVC(M-290)	SOD523/SC79		SC-79	
SFP	SSS Mini 2P								

# Standard Taping Specifications

## • Emboss Taping Reel Pack

Package	Packing Unit	Name	Packing Configurations
URP	3,000	Type No.+TL/TR	Emboss TAPING REEL PACK (conforming to EIAJ standard RC-1009B) 8mm emboss tape tape (equivalent to EIAJ type TE84F)
SRP	3,000	Type No.+TL/TR	
MPAK CMPAK CMPAK-4	3,000	Type No.+TL/TR	
MPAK-5 CMPAK-5 VSON-5	3,000	Type No.+TL/TR	
MFPAK	2-mm pitch 9,000	Type No.+TL/TR	
LLD	2,500	Type No.+TL/TR	
UFP	4-mm pitch 4,000	Type No.+TR	
	2-mm pitch 8,000	Type No.+KR	
SFP	2-mm pitch 8,000	Type No.+KR	
EFP	2-mm pitch 10,000	Type No.+KR	

Note: TR is recommended for emboss taping and reel specification.

## • Taping Pulling Direction

Package	Taping Code	Appearance
URP SRP LLD MOP	TR (Taping to Right)	TR Pulling direction → 
UFP	TR (Taping to Right)	TR Pulling direction → 
	KR	KR Pulling direction → 
SFP EFP	KR	KR Pulling direction → 
		MPAK/CMPAK CMPAK-4 MPAK-5 CMPAK-5 VSON-5 MFPAK

Taping of URP package takes the following symbol according to quantity, group in 1 reel etc.

Taping code	TRF	TRU	TRV
Taping direction	TR	TR	TR
Maximum category in 1 reel	-	4	
Quantity in 1 reel	3000 pcs		
Grouping	-	20 pcs or more	
End of group	-	4 spaces	Non-reflection tape on 1 space
Note	-	C.C system*	

\*. Continuous Connected taping system of variable capacitance diode.

\*\* Please contact our sales office if you need the TL type.

Taping of UFP/SFP package takes the following symbol according to quantity, group in 1 reel etc.  
(SFP Package only KR\* taping)

Taping code	TRF	TRU	TRV	KRF	KRU	KRV	
Taping direction	TR			KR			
Maximum category in 1 reel	-	5 max		-	10 max		
Quantity in 1 reel	4000 pcs			8000 pcs			
Grouping	-	20 pcs or more		-	20 pcs or more		
End of group	-	9 spaces	1 space+ Non-reflection tape on 1space+1space	-	4 spaces	Non-reflection tape on 1 space	
Note	-	C.C system*			-	C.C system*	

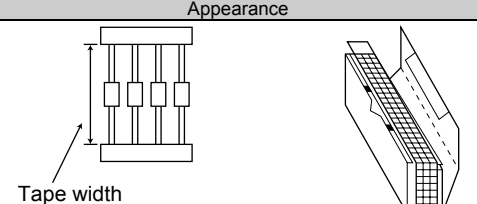
\* Continuous Connected taping system of variable capacitance diode.



# Standard Taping Specifications

See catalogues for details.


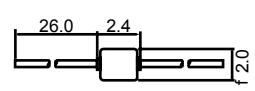
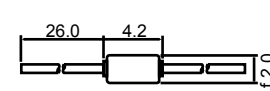
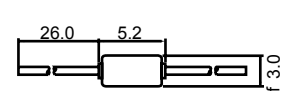
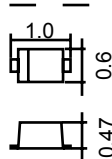
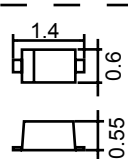
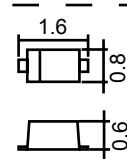
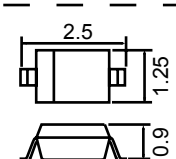
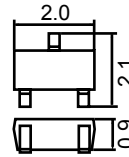
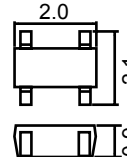
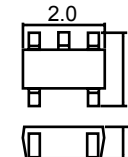
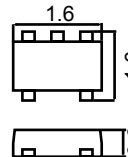
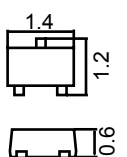
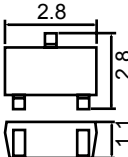
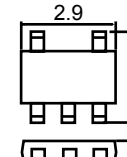

## •Axial Taping AMMO Pack (AMMO BOX)

Symbol	Package	Taping Dimension	Packing Unit (pcs)	Appearance
TA*	DO-35 MHD	52 mm	5000	
TD	DO-35 MHD	26 mm	2500	
TE*			5000	
TJ	MHD, UMD		5000	
TK*	DO-41	52 mm	2500	
TN*	DO-41	26 mm	2500	

\*It is recommended for radial taping and reel specification.

# Package

Hitachi code  $\left( \begin{array}{c} \text{JEDEC code} \\ \text{EIAJ code} \end{array} \right)$

 LLD	 MHD $\left( \begin{array}{c} \text{DO-34} \\ - \end{array} \right)$	 DO-35 $\left( \begin{array}{c} \text{DO-35} \\ \text{SC-48} \end{array} \right)$	 DO-41 $\left( \begin{array}{c} \text{DO-31} \\ \text{SC-47} \end{array} \right)$
 EFP <1006>	 SFP <1406>	 UFP <1608>	 URP $\left( \begin{array}{c} \text{SOD-323} \\ - \end{array} \right)$
 CMPAK $\left( \begin{array}{c} - \\ \text{SC-70} \end{array} \right)$	 CMPAK-4	 CMPAK-5	 VSON-5
 MFPK	 MPAK $\left( \begin{array}{c} - \\ \text{SC-59A} \end{array} \right)$	 MPAK-5	 MOP

Note: These packages are not full size.

# Surface Mount Type Marking

## •MPAK/MFPAK Marking (Except Zenner Diode Series)

Type No.	Marking	Pin Connection
HRW0202A	S17	Fig. 5 CC
HRW0202B	S18	Fig. 5 CC
HRW0203A	S5	Fig. 4 SI(1)
HRW0203B	S21	Fig. 7 SI(2)
HRW0302A	S11	Fig. 4 SI(1)
HRW0502A	S10	Fig. 4 SI(1)
HRW0503A	S6	Fig. 4 SI(1)
HRW0702A	S15	Fig. 4 SI(1)
HRW0703A	S8	Fig. 4 SI(1)
HSM83	F7	Fig. 4 SI(1)
HSM88AS	C1	Fig. 2 SE
HSM88ASR	C3	Fig. 1 SER
HSM88WA	C7	Fig. 6 AC
HSM88WK	C4	Fig. 5 CC
HSM107S	C5	Fig. 2 SE
HSM123	A9	Fig. 2 SE
HSM124S	A1	Fig. 2 SE
HSM126S	S14	Fig. 2 SE
HSM198S	C6	Fig. 2 SE
HSM221C	A2	Fig. 4 SI(1)
HSM223C	A8	Fig. 3 SIR(1)

Type No.	Marking	Pin Connection
HSM276AS	S19	Fig. 2 SE
HSM276S	C2	Fig. 2 SE
HSM276ASR	S20	Fig. 1 SER
HSM276SR	C9	Fig. 1 SER
HSM2694	B3	Fig. 6 AC
HSM2836C	A4	Fig. 6 AC
HSM2838C	A6	Fig. 5 CC
HVM14	H5	Fig. 4 SI(1)
HVM14S	H6	Fig. 2 SE
HVM14SR	H7	Fig. 1 SER
HVM16	T3	Fig. 5 CC
HVM27WK	T5	Fig. 5 CC
HVM187S	H3	Fig. 2 SE
HVM187WK	H1	Fig. 5 CC
HVM189S	H9	Fig. 2 SE
HZM6.2ZMWA	62N	Fig. 6 AC
HZM6.8MWA	68M	Fig. 6 AC
HZM6.8ZMWA	68N	Fig. 6 AC
HZM27WA	27A	Fig. 6 AC
HZM3.3WA	33A	Fig. 6 AC
HSN278WK	SI-	Fig. 5 CC

Pin Connection	Marking Example
Fig. 1 SER	
Fig. 2 SE	
Fig. 3 SIR(1)	
Fig. 4 SI(1)	
Fig. 5 CC	
Fig. 6 AC	
Fig. 7 SI(2)	
Fig. 8 SIR(2)	

## •CMPAK Marking

Type No.	Marking	Pin Connection
HVB14S	H6	Fig. 2 SE
HVB27WK	T5	Fig. 5 CC
HVB387BWK	V5	Fig. 5 CC
HRB0103A	E1	Fig. 4 SI(1)
HRB0103B	E2	Fig. 2 SE
HRB0502A	E3	Fig. 4 SI(1)
HRC0202A	S16	Fig. 5 CC
HVB190S	H9	Fig. 2 SE

Type No.	Marking	Pin Connection
HSB123	A9	Fig. 2 SE
HSB124S	A1	Fig. 2 SE
HSB276AS	E8	Fig. 2 SE
HSB276S	C2	Fig. 2 SE
HSB83	F7	Fig. 4 SI(1)
HSB88AS	C1	Fig. 2 SE
HSB88WA	C7	Fig. 6 AC

Type No.	Marking	Pin Connection
HSB226S	E7	Fig. 2 SE
HSB226WK	E6	Fig. 5 CC
HSB278S	S2	Fig. 2 SE
HSB88WK	C4	Fig. 5 CC
HSB2836	A4	Fig. 6 AC
HSB2838	A6	Fig. 5 CC
HZB6.8MWA	68M	Fig. 6 AC

Refer to MPAK Pin connection.

## •CMPAK-4 Marking

Type No.	Marking	Pin Connection
HSB0104YP	E4	See Fig.
HSB226YP	E5	See Fig.
HSB83YP	F7	See Fig.
HSB88YP	C1	See Fig.

Type No.	Marking	Pin Connection
HSB276AYP	E9	See Fig.
HVB187YP	P1	See Fig.
HVB350BYP	V1	See Fig.

Pin Connection	Marking Example

## •CMPAK-5 Marking

Type No.	Marking	Pin Connection
HZB6.8ZMFA	68N	See Fig.
HZB5.6MFA	56M	See Fig.

## •MPAK-5/VSON-5 Marking

Type No.	Marking	Pin Connection
HZM4.3FA	43A	See Fig.
HZM5.6ZFA	56Z	See Fig.
HZM6.2ZMFA	62N	See Fig.
HZM6.8MFA	68M	See Fig.

Type No.	Marking	Pin Connection
HZM6.8ZMFA	68N	See Fig.
HZM7.5FA	75A	See Fig.
HZM27FA	27A	See Fig.
HZN6.8ZMFA	68*	See Fig.

Pin Connection	Marking Example

## •URP/UFP/SFP/EPF Marking

Type No.	Marking	Cathode Marking Color
HRC0203B	S2	Laser mark
HRC0203C	S8	Laser mark
HRU0103A/HRC0103A	S1	Laser mark
HRU0203A	Y	Laser mark
HRU0302A	Z	Laser mark
HSC88	S3	Laser mark
HSC226	S4	Laser mark
HSC278	S6	Laser mark
HSD88	S3	Laser mark
HSD226	S4	Laser mark
HSD276A	S2	Laser mark
HSD278	S1	Laser mark
HSU83	T	Laser mark
HSU88	9	Laser mark
HSU119/HSC119	H1	Laser mark
HSU227	S3	Laser mark
HSU276/HSC276	3/C2	Laser mark
HSU276A	S5	Laser mark
HSU277/HSC277	3/No mark	Laser mark
HVC142	T2	Laser mark
HVC145/HVD145/HVU145	T5	Laser mark
HVC308A	V	Laser mark
HVC316	N	Laser mark
HVC317B	A5	Laser mark
HVC355B/HVU355B	B1	Laser mark
HVC358B	B2	Laser mark
HVC362	V2	Laser mark
HVC365	V6	Laser mark
HVC368B	B4	Laser mark
HVC369B	B3	Laser mark

Type No.	Marking	Cathode Marking Color
HVC372B	B5	Laser mark
HVC374B	B6	Laser mark
HVC375B	B8	Laser mark
HVC376B	B9	Laser mark
HVC379B	F1	Laser mark
HVC380B	F2	Laser mark
HVC381B	F3	Laser mark
HVC383B	F4	Laser mark
HVC385B	F6	Laser mark
HVC386B	F7	Laser mark
HVC396C	F9	Laser mark
HVC417C	A8	Laser mark
HVD131	1	Laser mark
HVD132	2	Laser mark
HVD133	3	Laser mark
HVD138A	T8	Laser mark
HVD141	T1	Laser mark
HVD142	T2	Laser mark
HVD144	T4	Laser mark
HVD350B	A	Laser mark
HVD355B	B	Laser mark
HVD358B	C	Laser mark
HVD359	G	Laser mark
HVD365	H	Laser mark
HVD368B	E	Laser mark
HVD369B	D	Laser mark
HVD372B	F	Laser mark
HVD380B	J	Laser mark
HVD381B	K	Laser mark
HVD385B	M	Laser mark
HVD396C	U	Laser mark

Type No.	Marking	Cathode Marking Color
HVL138A	L	Laser mark
HVL142	2	Laser mark
HVL144	3	Laser mark
HVL145	4	Laser mark
HVL358B	8	Laser mark
HVL385B	6	Laser mark
HVL396C	7	Laser mark
HVL397C	A	Laser mark
HVU17	E	Laser mark
HVU131/HVC131	P1	Laser mark
HVU132/HVC132	P2	Laser mark
HVU133/HVC133	P3	Laser mark
HVU187	D	Laser mark
HVU200A/HVC200A	2	Laser mark
HVU202A/HVC202A	Q	Laser mark
HVU202B/HVC202B	A0	Laser mark
HVU300A/HVC300A	0	Laser mark
HVU300B/HVC300B	A1	Laser mark
HVU306A/HVC306A	3	Laser mark
HVU306B/HVC306B	A2	Laser mark
HVU307	7	Laser mark
HVU316	N	Laser mark
HVU350B/HVC350B	B0	Laser mark
HVU359/HVC359	S	Laser mark
HVU363A/HVC363A	V3	Laser mark
HVU363B/HVC363B	A3	Laser mark
HVU383B	F4	Laser mark
HVU417C	A8	Laser mark
HZU5.1G	51	Laser mark
HZU5.6G	56	Laser mark
HZU5.6Z	56Z	Laser mark

Type No.	Marking	Cathode Marking Color
HZU6.2G	62	Laser mark
HZU6.2Z	62Z	Laser mark
HZU6.8G	68	Laser mark
HZU6.8Z	68Z	Laser mark
HZU7.5G	75	Laser mark
HZU8.2G	82	Laser mark
HZU9.1G	91	Laser mark
HZU10G	10	Laser mark
HVC142A	T6	Laser mark
HVC190	H9	Laser mark
HVC307	7	Laser mark
HVC397C	G0	Laser mark
HVD142A	T6	Laser mark
HVD144A	T7	Laser mark
HVD397C	9	Laser mark
HVL142A	J	Laser mark
HVL144A	K	Laser mark
HVL355B	B	Laser mark
HVL388C	9	Laser mark

Marking Example

Note: There are some ink marking type products, so confirm details by catalogue.

# Surface Mount Type Marking

## •HZM-N Series Marking

Type No.	Grade	Marking
HZM2.0N	B	20-
HZM2.2N	B	22-
HZM2.4N	B	24-
HZM2.7N	B1	271
	B2	272
HZM3.0N	B1	301
	B2	302
HZM3.3N	B1	331
	B2	332
HZM3.6N	B1	361
	B2	362
HZM3.9N	B1	391
	B2	392
HZM4.3N	B1	431
	B2	432
	B3	433

Type No.	Grade	Marking
HZM4.7N	B1	471
	B2	472
	B3	473
HZM5.1N	B1	511
	B2	512
	B3	513
HZM5.6N	B1	561
	B2	562
	B3	563
HZM6.2N	B1	621
	B2	622
	B3	623
HZM6.8N	B1	681
	B2	682
	B3	683

Type No.	Grade	Marking
HZM7.5N	B1	751
	B2	752
	B3	753
HZM8.2N	B1	821
	B2	822
	B3	823
HZM9.1N	B1	911
	B2	912
	B3	913
HZM10N	B1	101
	B2	102
	B3	103
HZM11N	B1	111
	B2	112
	B3	113

Type No.	Grade	Marking
HZM12N	B1	121
	B2	122
	B3	123
HZM13N	B1	131
	B2	132
	B3	133
HZM15N	B1	151
	B2	152
	B3	153
HZM16N	B1	161
	B2	162
	B3	163
HZM18N	B1	181
	B2	182
	B3	183

Type No.	Grade	Marking
HZM20N	B1	201
	B2	202
	B3	203
HZM22N	B1	221
	B2	222
	B3	223
HZM24N	B1	241
	B2	242
	B3	243
HZM27N	B	27-
HZM30N	B	30-
HZM33N	B	33-
HZM36N	B	36-

## •HZU/HZU-LL Series Marking

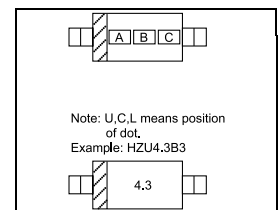
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HZU2.2	B	2	C	2
HZU2.4	B	2	C	4
HZU2.7	B1	2	U	7
	B2	2	C	7
HZU3.0	B1	3	U	0
	B2	3	C	0
HZU3.3	B1	3	U	3
	B2	3	C	3
HZU3.6	B1	3	U	6
	B2	3	C	6
HZU3.9	B1	3	U	9
	B2	3	C	9
HZU4.3	B1	4	U	3
	B2	4	C	3
	B3	4	L	3
HZU4.7	B1	4	U	7
	B2	4	C	7
	B3	4	L	7

Type No.	Grade	Marking		
		A	B	C
HZU5.1	B1	5	U	1
	B2	5	C	1
	B3	5	L	1
HZU5.6	B1	5	U	6
	B2	5	C	6
	B3	5	L	6
HZU6.2	B1	6	U	2
	B2	6	C	2
	B3	6	L	2
HZU6.8	B1	6	U	8
	B2	6	C	8
	B3	6	L	8
HZU7.5	B1	7	U	5
	B2	7	C	5
	B3	7	L	5
HZU8.2	B1	8	U	2
	B2	8	C	2
	B3	8	L	2

Type No.	Grade	Marking		
		A	B	C
HZU9.1	B1	9	U	1
	B2	9	C	1
	B3	9	L	1
HZU10	B1	1	0	U
	B2	1	0	C
	B3	1	0	L
HZU11	B1	1	1	U
	B2	1	1	C
	B3	1	1	L
HZU12	B1	1	2	U
	B2	1	2	C
	B3	1	2	L
HZU13	B1	1	3	U
	B2	1	3	C
	B3	1	3	L
HZU15	B1	1	5	U
	B2	1	5	C
	B3	1	5	L

Type No.	Grade	Marking		
		A	B	C
HZU16	B1	1	6	U
	B2	1	6	C
	B3	1	6	L
HZU18	B1	1	8	U
	B2	1	8	C
	B3	1	8	L
HZU20	B1	2	0	U
	B2	2	0	C
	B3	2	0	L
HZU22	B1	2	2	U
	B2	2	2	C
	B3	2	2	L
HZU24	B1	2	4	U
	B2	2	4	C
	B3	2	4	L
HZU27	B	2	7	C
HZU30	B	3	0	C
HZU33	B	3	3	C
HZU36	B	3	6	C

Type No.	Grade	Marking
HZU2LL	A	2A
	B	2B
	C	2C
HZU3LL	A	3A
	B	3B
	C	3C
HZU4LL	A	4A
	B	4B
	C	4C
HZU5LL	A	5A
	B	5B
	C	5C



## •HZC Series Marking

Type No.	Marking
HZC2.0	20
HZC2.2	22
HZC2.4	24
HZC2.7	27
HZC3.0	30
HZC3.3	33
HZC3.6	36
HZC3.9	39
HZC4.3	43
HZC4.7	47
HZC5.1	51

Type No.	Marking
HZC5.6	56
HZC6.2	62
HZC6.8	68
HZC7.5	75
HZC8.2	82
HZC9.1	91
HZC10	10 ■
HZC11	11 ■
HZC12	12 ■
HZC13	13 ■

Type No.	Marking
HZC15	15 ■
HZC16	16 ■
HZC18	18 ■
HZC20	20 ■
HZC22	22 ■
HZC24	24 ■
HZC27	27 ■
HZC30	30 ■
HZC33	33 ■
HZC36	36 ■

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## •Printing

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