HS2AA thru HS2MA

High Efficient Surface Mount Rectifiers

Reverse Voltage 50 to 1000Volts Forward Current 1.5 A

2018

Features

- Glass passivated junction chip
- For surface mounted application
- Low forward voltage drop
- Low profile package
- Built-in stain relief, ideal for automated placement
- Fast switching for high efficiency
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



DO-214AC (SMA)

Typical Applications

For use of general purpose rectification in lighting, cellular phone, portable device, power supplies and other consumer applications.

Maximum Ratings (TA = 25 °C unless otherwise noted)

Parameter	Symbol	HS2AA	HS2BA	HS2DA	HS2FA	HS2GA	HS2JA	HS2KA	HS2MA	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	300	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	210	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	300	400	600	800	1000	V
Maximum average output rectified current	$I_{F(AV)}$	1.5								A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50								A
Rating for fusing(t<8.3ms)	I^2t	10								A^2sec
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150								°C

Electrical Characteristics (TA = 25 °C unless otherwise noted)

Parameter	Test Conditions	Symbol	HS2AA	HS2BA	HS2DA	HS2FA	HS2GA	HS2JA	HS2KA	HS2MA	Unit
Maximum instantaneous forward voltage	I_F=1.5A T_A=25℃	V_F	1.0				1.3	1.7			Volts
Maximum DC reverse current at rated DC blocking voltage	T_A=25℃	I_R	5.0								μA
	T_A=125℃		100								
Maximum reverse recovery time	I_F=0.5A,I_R=1.0A, I_{RR}=0.25A	t_{rr}	50					75			nS
Typical junction capacitance	4.0 V, 1 MHz	C_J	50					30			pF

Thermal Characteristics

Parameter	Symbol	HS2AA	HS2BA	HS2DA	HS2FA	HS2GA	HS2JA	HS2KA	HS2MA	Unit
Typical thermal resistance(1)	$R_{\theta JA}$	67								℃/W
	$R_{\theta JC}$	27								
	$R_{\theta JI}$	7								

Notes:1. The thermal resistance from junction to ambient,case or mount,mounted on P.C.B with 5×5mm copper pads,2 OZ,FR4 PCB

Ratings and Characteristics Curves

(TA = 25℃ unless otherwise noted)

FIG.1- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

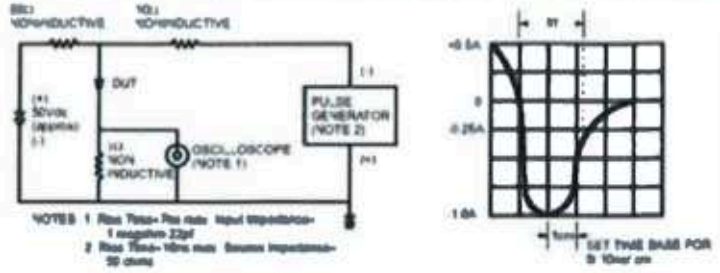


FIG.2- MAXIMUM FORWARD CURRENT DERATING CURVE

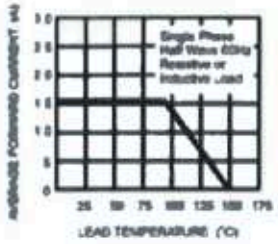


FIG.3- TYPICAL REVERSE CHARACTERISTICS

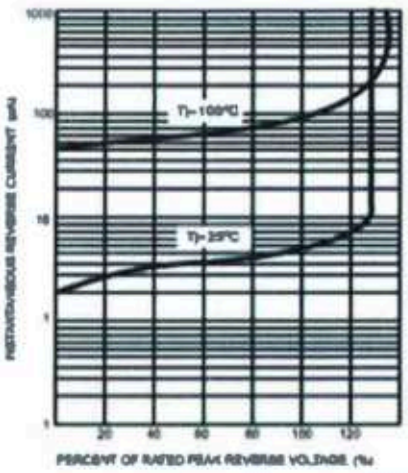


FIG.4- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

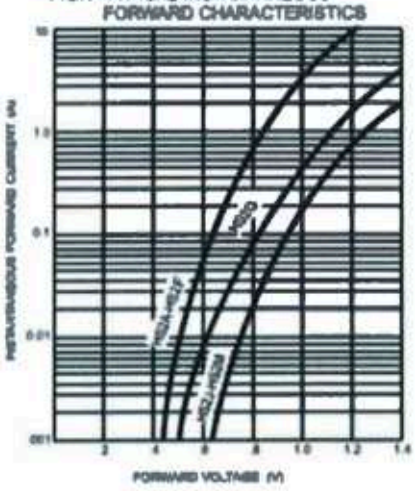


FIG.5- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

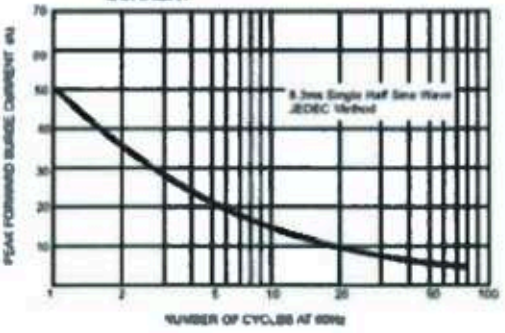
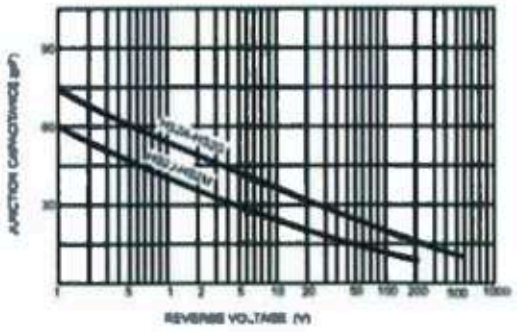


FIG.6- TYPICAL JUNCTION CAPACITANCE

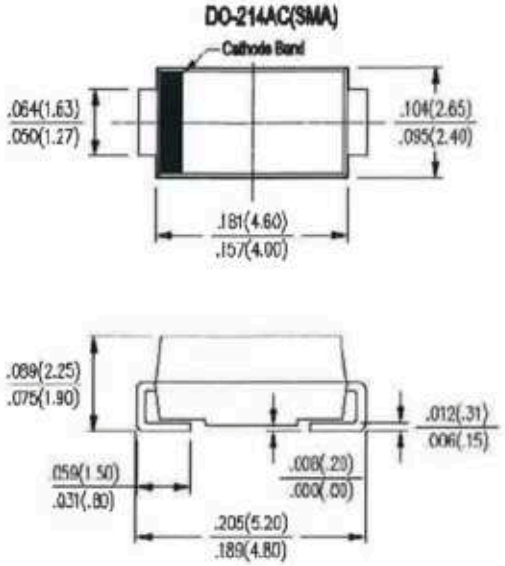


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Package Outline Dimensions

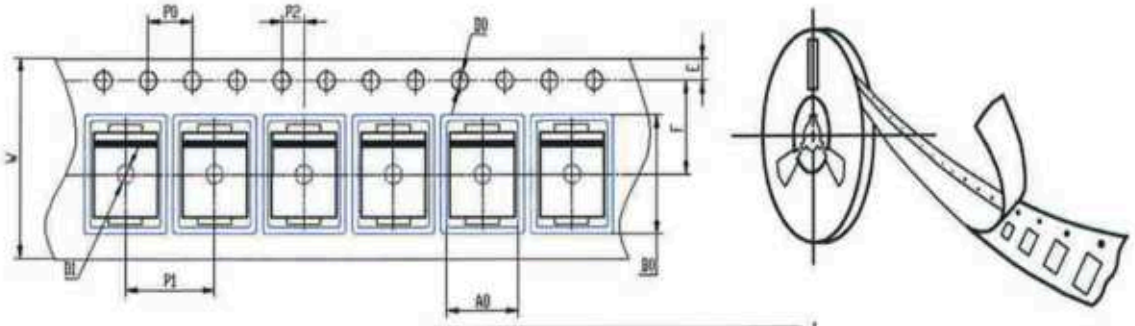




Packing Information

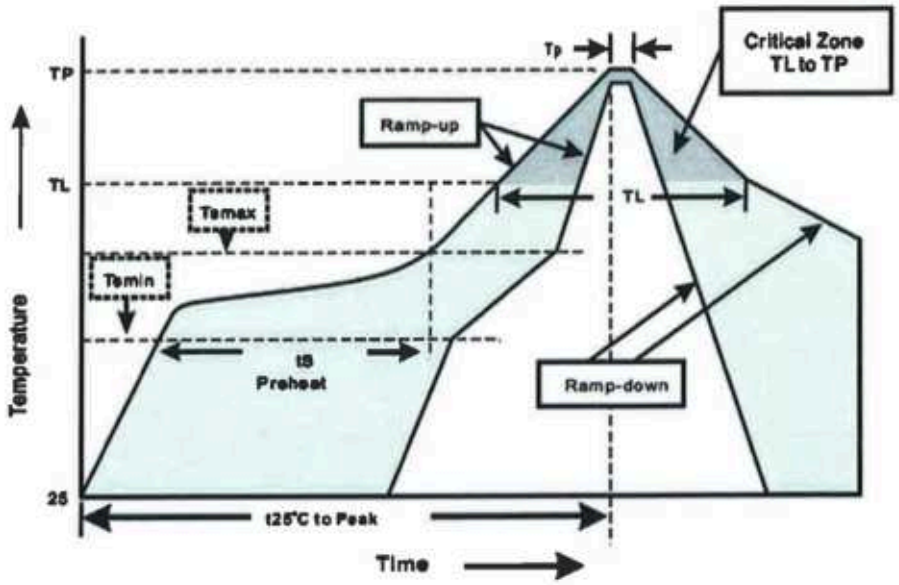
7500 pcs/Reel, 18 Reels/Box; 12mm Tape, 13" Reel

Tape & Reel Specification



Symbo	SMA (mm)
W	12±0.2
E	1.75±0.1
F	5.5±0.05
D0	1.5±0.1
D1	1.50 +0.1/-0
P0	4.0±0.1
P1	4.0±0.1
P2	2.0±0.05
A0	2.65±0.1
B0	5.25±0.1

Soldering Parameters



Reflow Soldering		Sn-Pb Eutectic Assembly	Pb-Free assembly
Pre Heat	- Temperature Min (Ts(min))	100°C	150°C
	- Temperature Max (Ts(max))	150°C	200°C
	- Time (min to max) (ts)	60 – 120 secs	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak		3°C/second max	3°C/second max
TS(max) to TL - Ramp-up Rate		3°C/second max	3°C/second max
Reflow	- Temperature (TL) (Liquidus)	183°C	217°C
	- Time (min to max) (ts)	60 – 150 seconds	60 – 150 seconds
Peak Temperature (TP)		240+0/-5 °C	240+0/-5°C
Time within 5°C of actual peak Temperature (tp)		10 –30 seconds	20 – 40 seconds
Ramp-down Rate		6°C/second max	6°C/second max
Time 25°C to peak Temperature (TP)		6 minutes Max.	8 minutes Max.
Do not exceed		260°C	260°C

Wave Soldering	
Peak Temperature :	260+0/-5°C
Dipping Time :	10 seconds
Soldering :	1 time