

Surface Mount Schottky Barrier rectifiers

Using the Schottky Barrier principle with a Molybdenum barrier meta. These state-of-the-art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity protection diodes, in surface mount applications where compact size and weight are critical to the system.

- * Low Forward Voltage.
- * Low Switching noise.
- * High Current Capacity
- * Guarantee Reverse Avalanche.
- * Guard-Ring for Stress Protection.
- * Low Power Loss & High efficiency.
- * 150 Operating Junction Temperature
- * Low Stored Charge Majority Carrier Conduction.
- * Plastic Material used Carries Underwriters Laboratory
Flammability Classification 94V-O
- * Moisture Sensitivity Level: MSL-1
- * *In compliance with EU RoHs 2002/95/EC directives*
- * *"G" Green product*

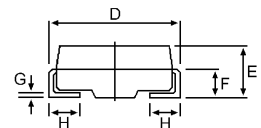
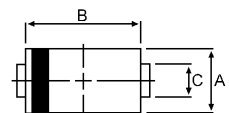


SCHOTTKY BARRIER RECTIFIERS

**3.0 AMPERES
70-100 VOLTS**



DO-214AA(SMB)



MAXIMUM RATINGS

Characteristic	Symbol	SR37	SR38	SR39	SR310	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	70	80	90	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	49	56	63	70	V
Average Rectifier Forward Current	I_O	3				A
Non-Repetitive Peak Surge Current (Surge applied at rate load conditions half-wave, single phase, 60Hz)	I_{FSM}	75				A
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150				

DIM	MILLIMETERS	
	MIN	MAX
A	3.30	3.90
B	4.20	4.60
C	1.80	2.20
D	5.10	5.60
E	1.90	2.50
F		1.30
G		0.22
H	0.95	1.35

CASE---
Transfer molded
plastic

POLARITY---
Cathode indicated
polarity band

ELECTRIAL CHARACTERISTICS

Characteristic	Symbol	SR37	SR38	SR39	SR310	Unit
Maximum Instantaneous Forward Voltage ($I_F = 3.0$ Amp)	V_F	0.75		0.85		V
Maximum Instantaneous Reverse Current (Rated DC Voltage, $T_C = 25^\circ$) (Rated DC Voltage, $T_C = 125^\circ$)	I_R	0.5 20				mA
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	40				$^\circ\text{C/W}$
Typical Junction Capacitance (Reverse Voltage of 4 volts & $f=1$ MHz)	C_P	180		150		pF

SR37 thru SR310

FIG-1 FORWARD CURRENT DERATING CURVE

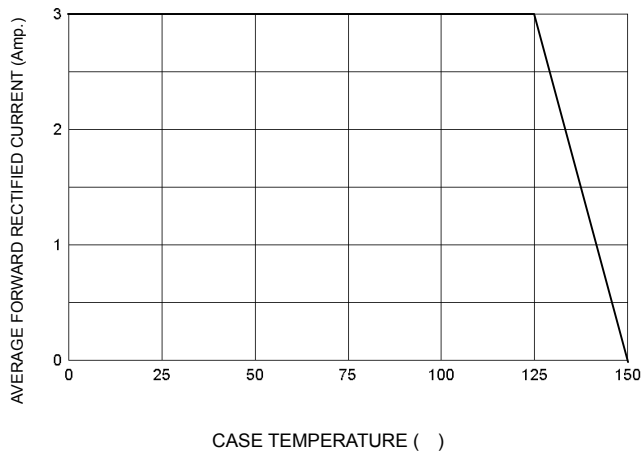


FIG-2 TYPICAL FORWARD CHARACTERISTICS

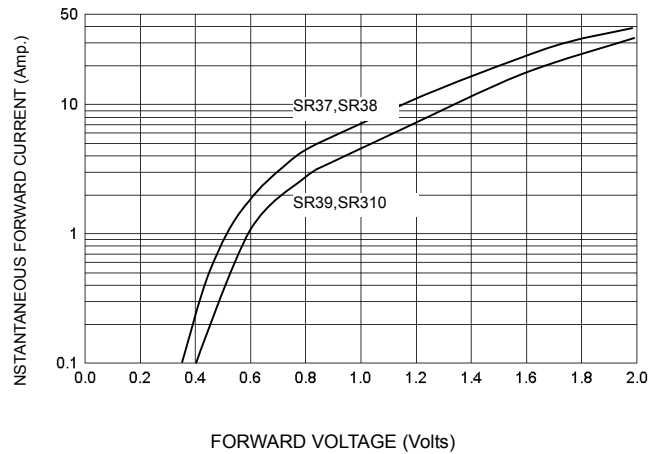


FIG-3 TYPICAL REVERSE CHARACTERISTICS

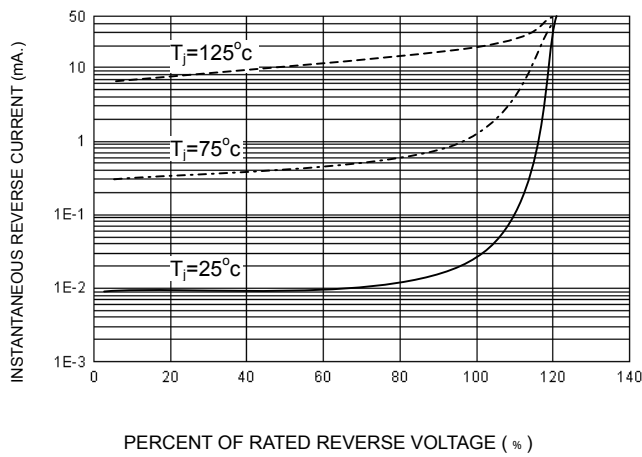


FIG-4 TYPICAL JUNCTION CAPACITANCE

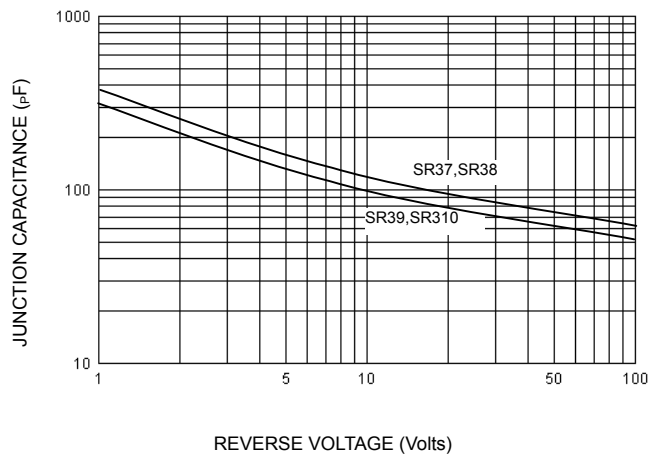
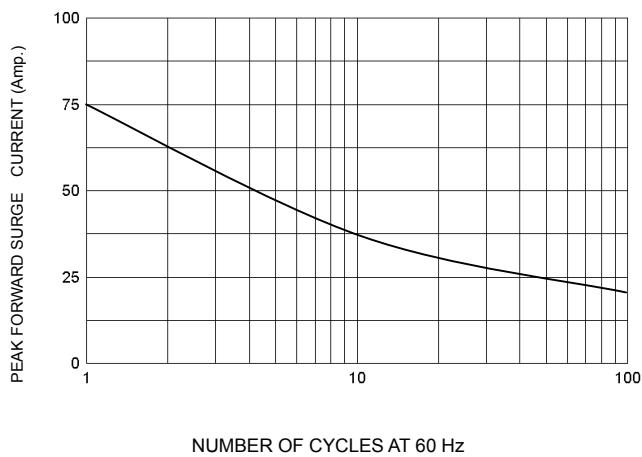


FIG-5 PEAK FORWARD SURGE CURRENT



REMARK: Green product is indicated by carton “Halogen-free”



Table 4-1 SnPb Eutectic Process – Package Peak Reflow Temperatures

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥ 350
<2.5 mm	240 +0/-5 °C	225 +0/-5 °C
≥ 2.5 mm	225 +0/-5 °C	225 +0/-5 °C

Table 4-2 Pb-free Process – Package Classification Reflow Temperatures

Package Thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 +0 °C *	260 +0 °C *	260 +0 °C *
1.6 mm - 2.5 mm	260 +0 °C *	250 +0 °C *	245 +0 °C *
≥2.5 mm	250 +0 °C *	245 +0 °C *	245 +0 °C *

* Tolerance: The device manufacturer/supplier shall assure process compatibility up to and including the stated classification temperature (this means Peak reflow temperature +0 °C. For example 260 °C+0°C) at the rated MSL level.

Table 5-2 Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate (Ts _{max} to Tp)	3 °C/second max.	3° C/second max.
Preheat <ul style="list-style-type: none"> – Temperature Min (Ts_{min}) – Temperature Max (Ts_{max}) – Time (ts_{min} to ts_{max}) 	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-180 seconds
Time maintained above: <ul style="list-style-type: none"> – Temperature (T_L) – Time (t_L) 	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak/Classification Temperature (Tp)	See Table 4.1	See Table 4.2
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	6 minutes max.	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

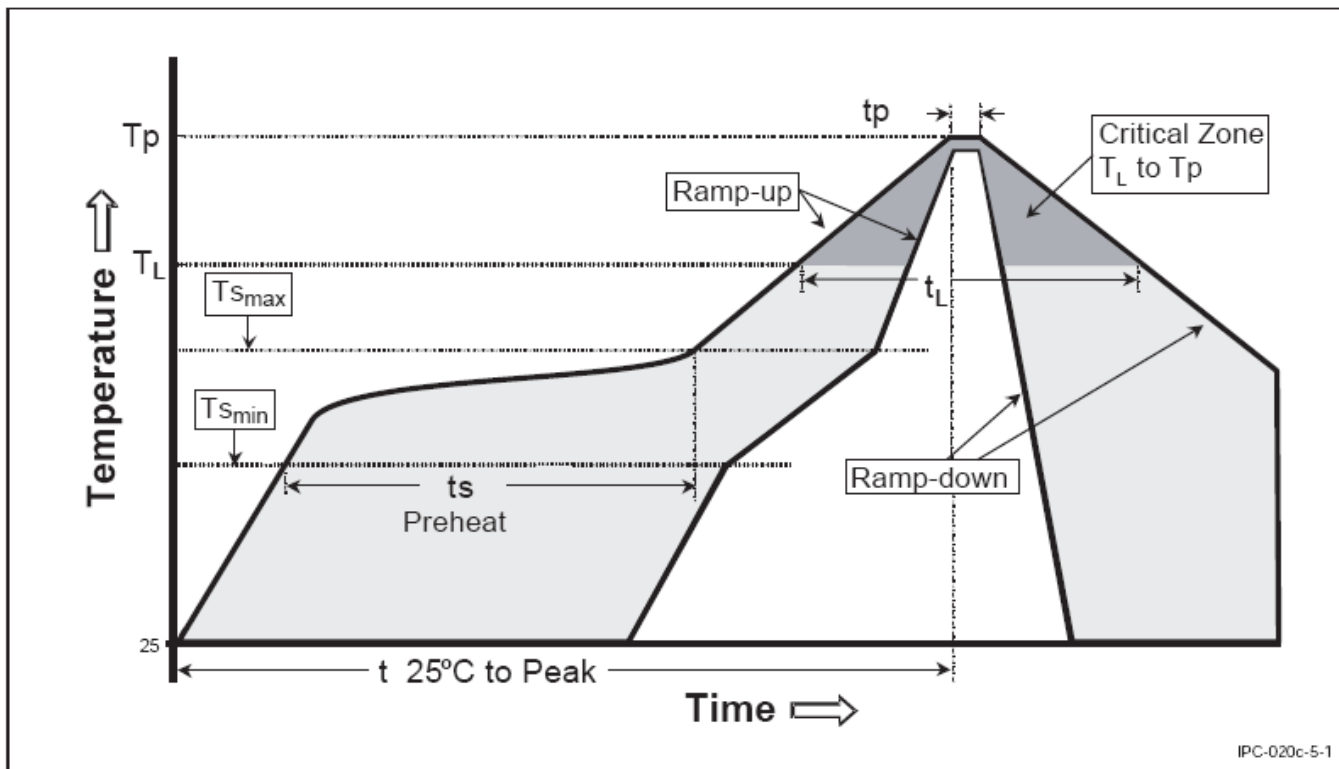


Figure 5-1 Classification Reflow Profile

- 參閱 J-STD-020C 規範, 請客戶依據產品包裝尺寸(長寬高), 電鍍成份決定適用條件。
(ps. MSC 為 Pb-free 電鍍)
- Rework solder Iron 建議條件: 350±10°C 5~10sec 1 次

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