

SMC Plastic-Encapsulate Diodes

Super Fast Recovery Rectifier Diodes

Features

- $I_{F(AV)}$ 3A
- V_{RRM} 50V-600V
- High surge current capability
- Polarity: Color band denotes cathode

Applications

- Rectifier

Marking

- ES3X

X : From A To J

SMC



Limiting Values(Absolute Maximum Rating)

Item	Symbol	Unit	Test Conditions	ES3							
				A	B	C	D	E	G	H	J
Repetitive Peak Reverse Voltage	V_{RRM}	V		50	100	150	200	300	400	500	600
Maximum RMS Voltage	V_{RMS}	V		35	70	105	140	210	280	350	420
Maximum DC Blocking Voltage	V_{DC}	V		50	100	150	200	300	400	500	600
Average Forward Current	$I_{F(AV)}$	A	60Hz Half-sine wave, Resistance load, $T_L=100^\circ\text{C}$	3.0							
Surge(Non-repetitive)Forward Current	I_{FSM}	A	60Hz Half-sine wave, 1 cycle, $T_a=25^\circ\text{C}$	100							
Operation Junction and Storage Temperature Range	T_J, T_{STG}	$^\circ\text{C}$		-55 ~ +150							

Electrical Characteristics (T=25°C Unless otherwise specified)

Item	Symbol	Unit	Test Condition		ES3							
					A	B	C	D	E	G	H	J
Peak Forward Voltage	V _F	V	I _F =3.0A		0.95				1.25		1.7	
Maximum reverse recovery time	t _{rr}	ns	I _F =0.5A,I _R =1.0A,I _{rr} =0.25A		35							
Peak Reverse Current	I _{RRM1}	μA	V _{RM} =V _{RRM}	T _a =25℃	10							
	T _a =100℃			500								
Typical junction capacitance	C _J	pF	Measured at 1MHz and applied reverse voltage of 4.0V D.C.		80							
Thermal Resistance(Typical)	R _{θJ-A}	℃/W	Between junction and ambient		47							
	R _{θJ-L}		Between junction and terminal		12							

Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.27" x 0.27" (7.0 mm x 7.0 mm) copper pad areas

Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

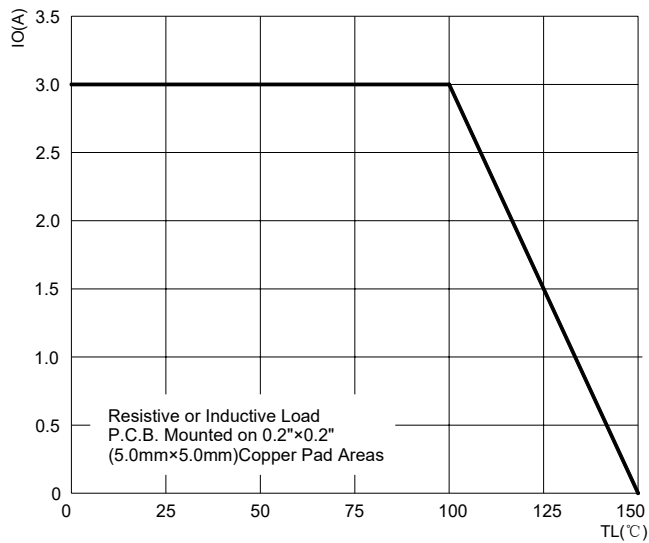


FIG.2: MAXIMUM NON-REPETITIVE FORWARD URGE CURRENT

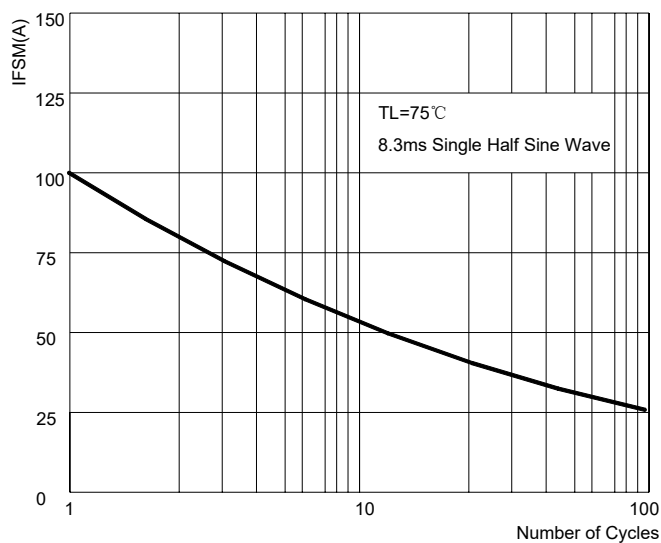


FIG.3: TYPICAL FORWARD CHARACTERISTICS

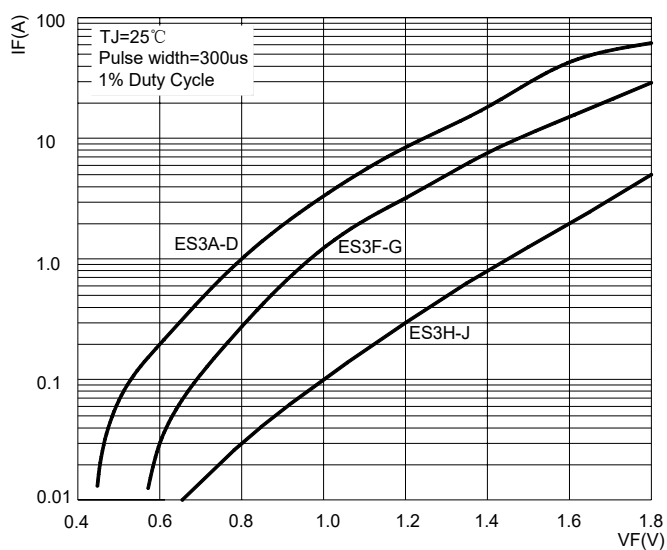


FIG.4: TYPICAL REVERSE CHARACTERISTICS

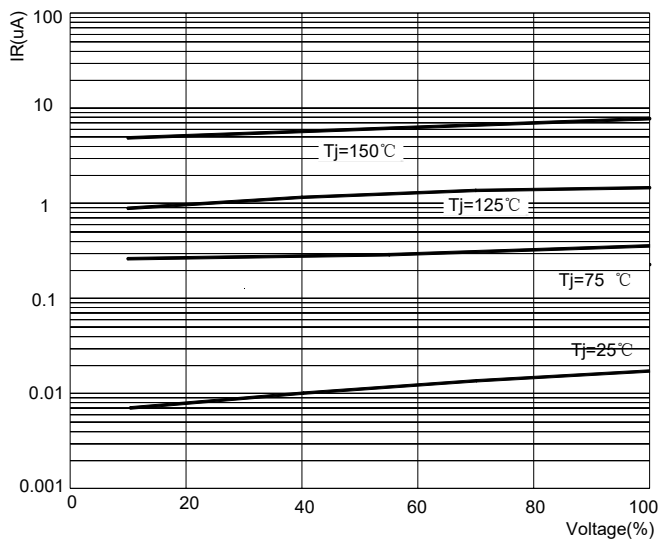
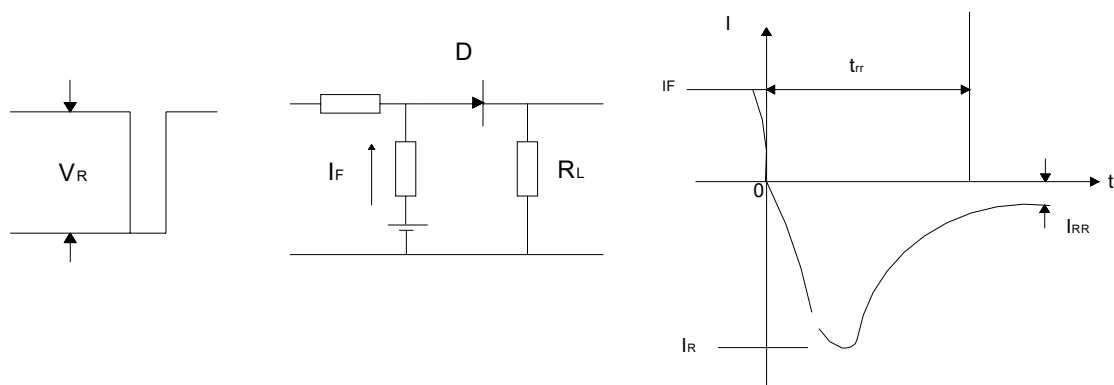
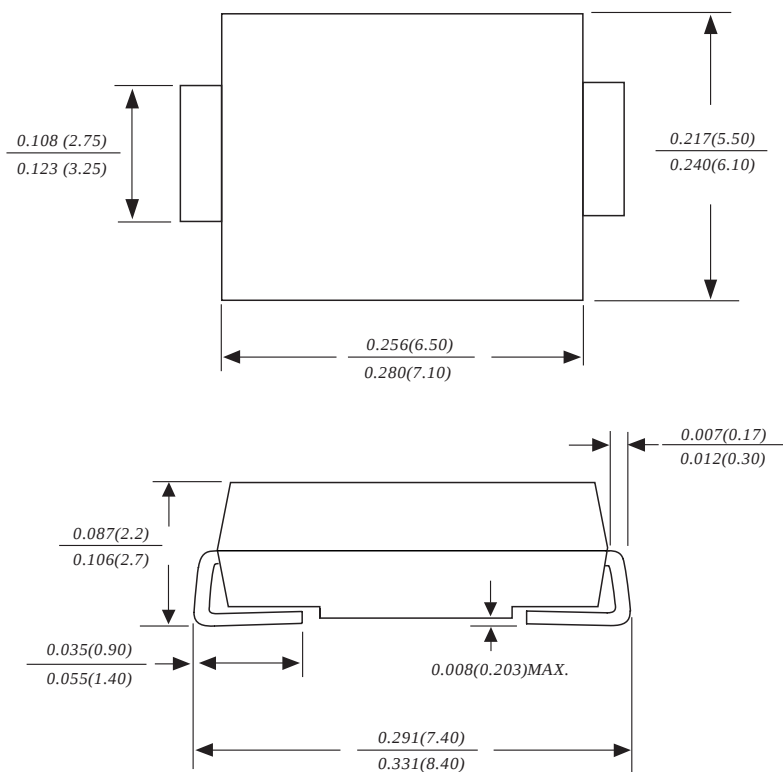


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

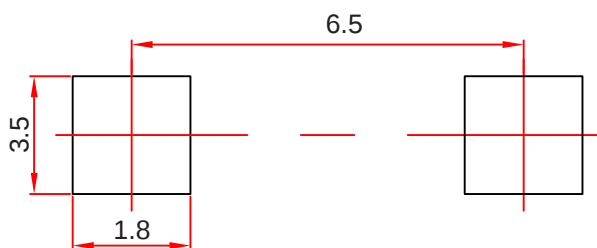


SMC Package Outline Dimensions



Dimensions in inches and (millimeters)

SMC Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Reel Taping Specifications For Surface Mount Devices–SMC

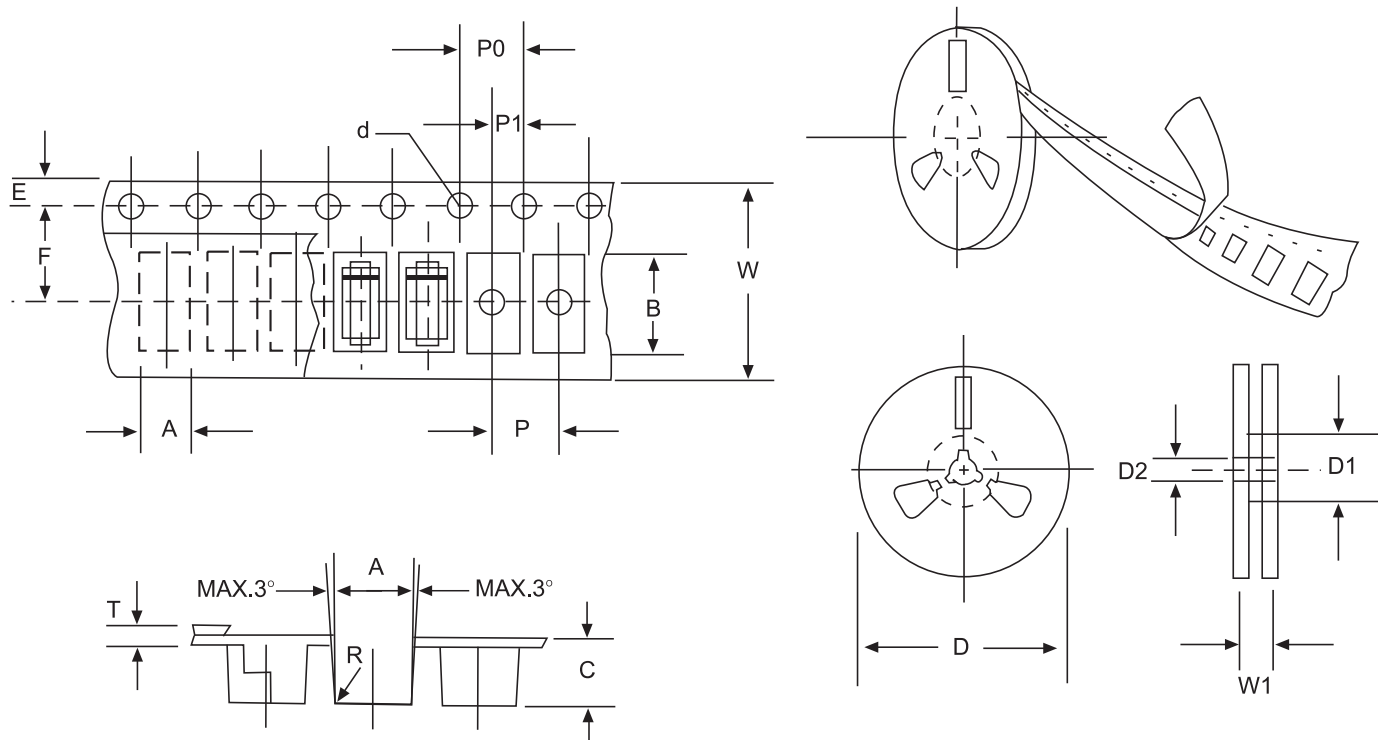


FIG:CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

ITEM	SYMBOL	SMC mm(inch)
Carrier width	A	6.05±0.1(0.238±0.004)
Carrier length	B	8.31±0.1(0.327±0.004)
Carrier depth	C	2.70±0.1(0.106±0.004)
Sprocket hole	d	1.55±0.05 (0.061±0.002)
Reel outside diameter	D	330±2.0(13±0.079)
Reel inner diameter	D1	75 ±1.0 (2.95 ±0.039)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Strocket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	7.65±0.05(0.301±0.002)
Punch hole pitch	P	8.0±0.1(0.315±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Totall tape thickness	T	0.3± 0.1 (0.012±0.004)
Tape width	W	16.0±0.2(0.630±0.008)
Reel width	W1	24.0±2.0(0.945±0.079)

NOTE:Devices are packed in accordance with EIA standard RS-481-A and specification given above.