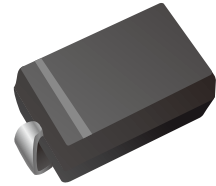


General Purpose Silicon Rectifier

Features

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Construction utilizes void-free molded plastic technique
- Low reverse leakage
- High forward surge current capability
- Lead free in comply with EU RoHS 2011/65/EU directives



Mechanical Data

- Case:SMA
- Terminals: leads solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any

Ordering Information

Part Number	Marking	Shipping	Reel
SM520-TR5	M520	5000PCS Tape&Reel	13 inchs
SM520-TR7K5	M520	7500PCS Tape&Reel	13 inchs

Maximum Ratings and Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.
 Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

Rating	Symbol	SM520	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	2000	V
Maximum RMS voltage	V_{RMS}	1400	V
Maximum DC blocking voltage	V_{DC}	2000	V
Maximum average forward rectified current 0.375"(9.5mm) lead length at $T_A=75^{\circ}C$	$I_{(AV)}$	1	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30	A
Maximum instantaneous forward voltage at 1.0 A	V_F	2	V
Maximum DC reverse current at rated DC blocking voltage $T_A=25^{\circ}C$ $T_A=100^{\circ}C$	I_R	5 50	μA
Typical junction capacitance (Note 1)	C_J	15	pF
Typical thermal resistance (Note 2)	$R_{\theta JA}$	95	$^{\circ}C/W$
Operating junction and storage temperature range	T_J, T_{STG}	-50 to +150	$^{\circ}C$

Note:(1) Measured at 1MHz and applied reverse voltage of 4.0V D.C.

(2) Thermal resistance from junction to ambient at 0.2 "(5mm) lead length, P.C.B. mounted.



Characteristics Curves

FIG. 1 FORWARD CURRENT DERATING CURVE

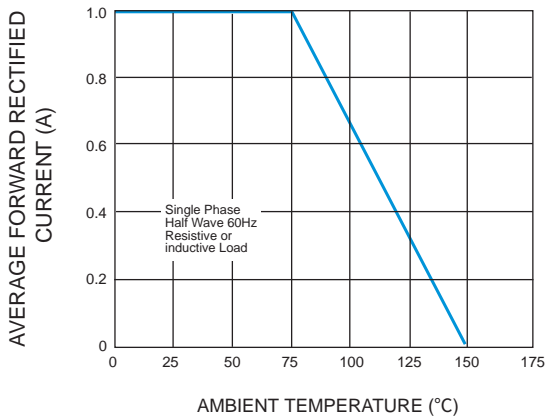


FIG. 2 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

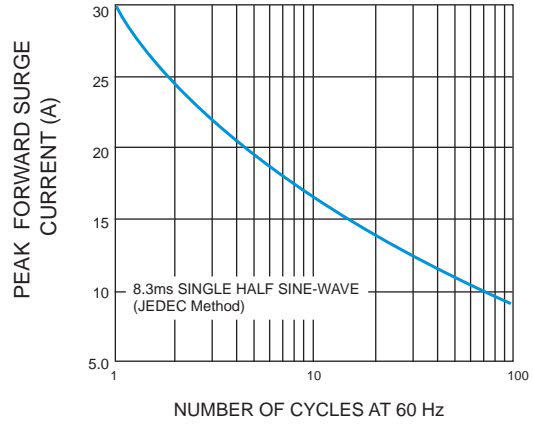


FIG. 3 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

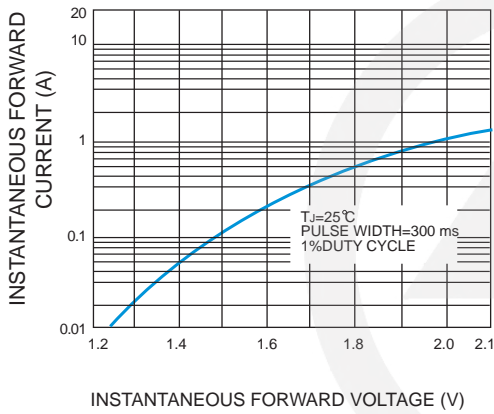


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

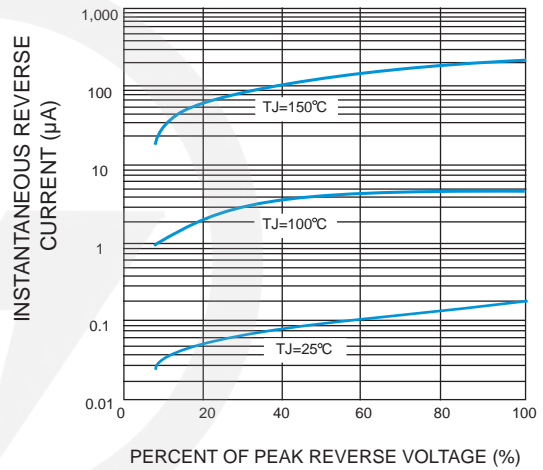


FIG. 5 TYPICAL JUNCTION CAPACITANCE

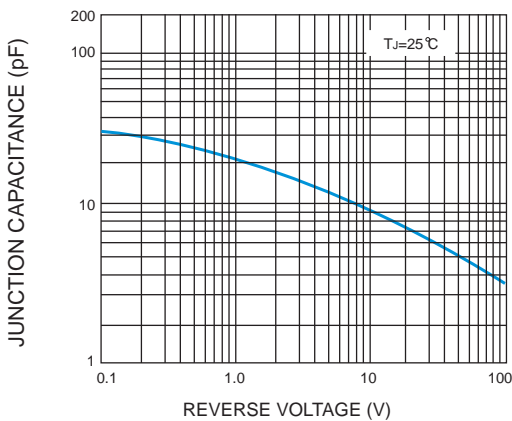
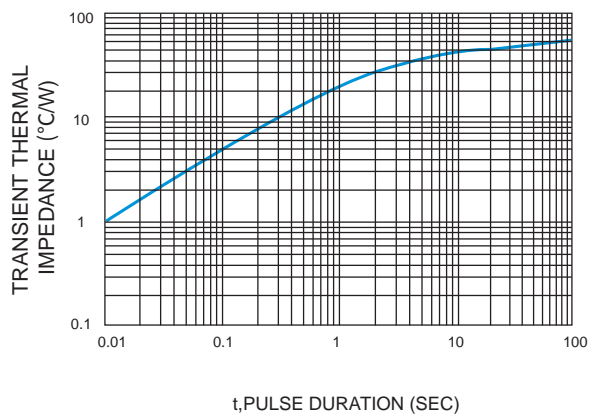
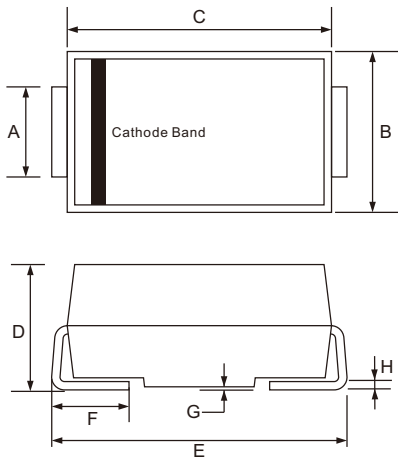


FIG. 6 TYPICAL TRANSIENT THERMAL IMPEDANCE



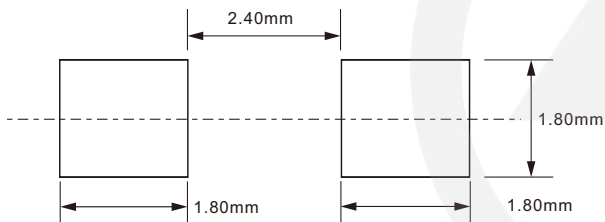
SMA Package Outline



Unit: mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	1.25	1.65
B	2.30	2.79
C	3.90	4.75
D	1.90	2.50
E	4.70	5.28
F	0.76	1.52
G	0.203 TYP.	
H	0.15	0.31

SMA Suggested Pad Layout



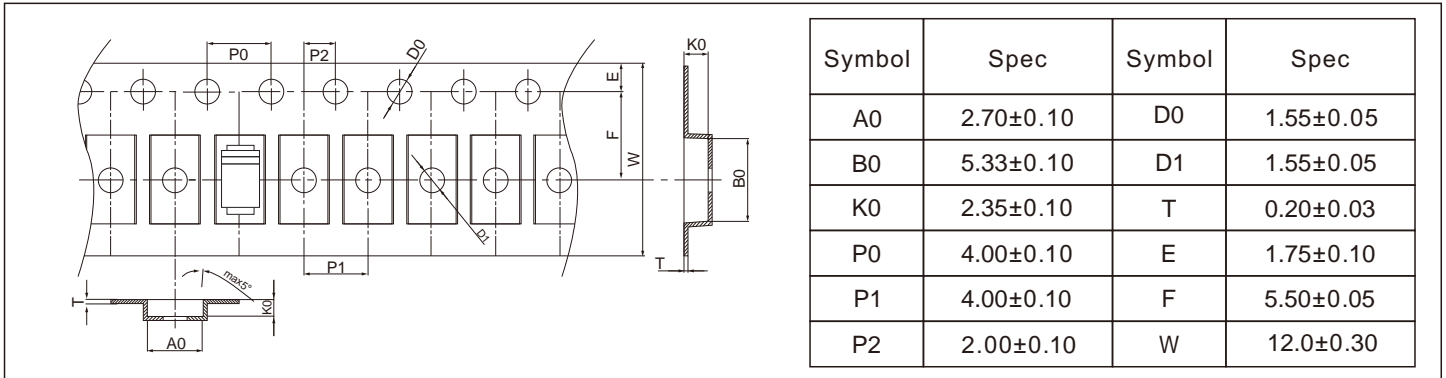
Note:

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



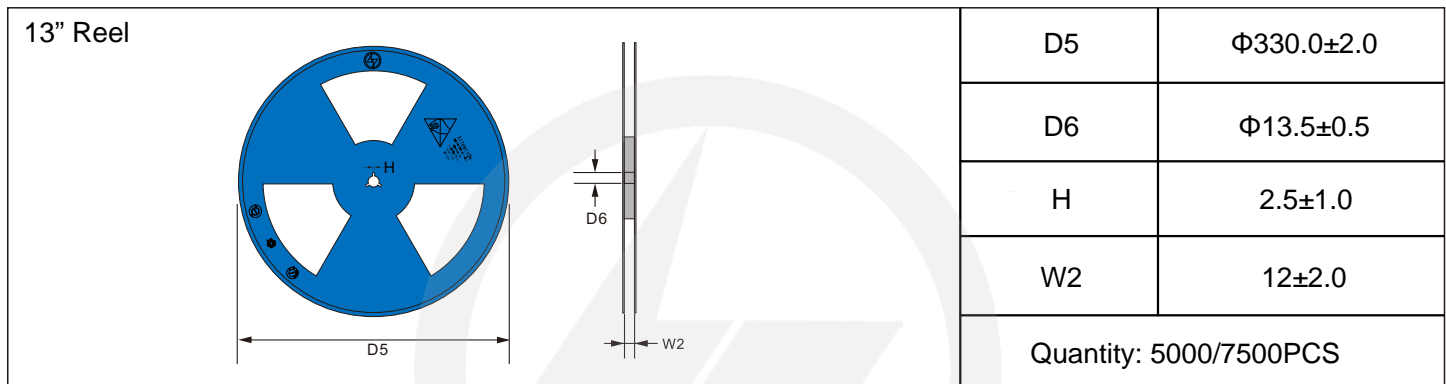
Carrier Tape Dimensions

Unit : mm

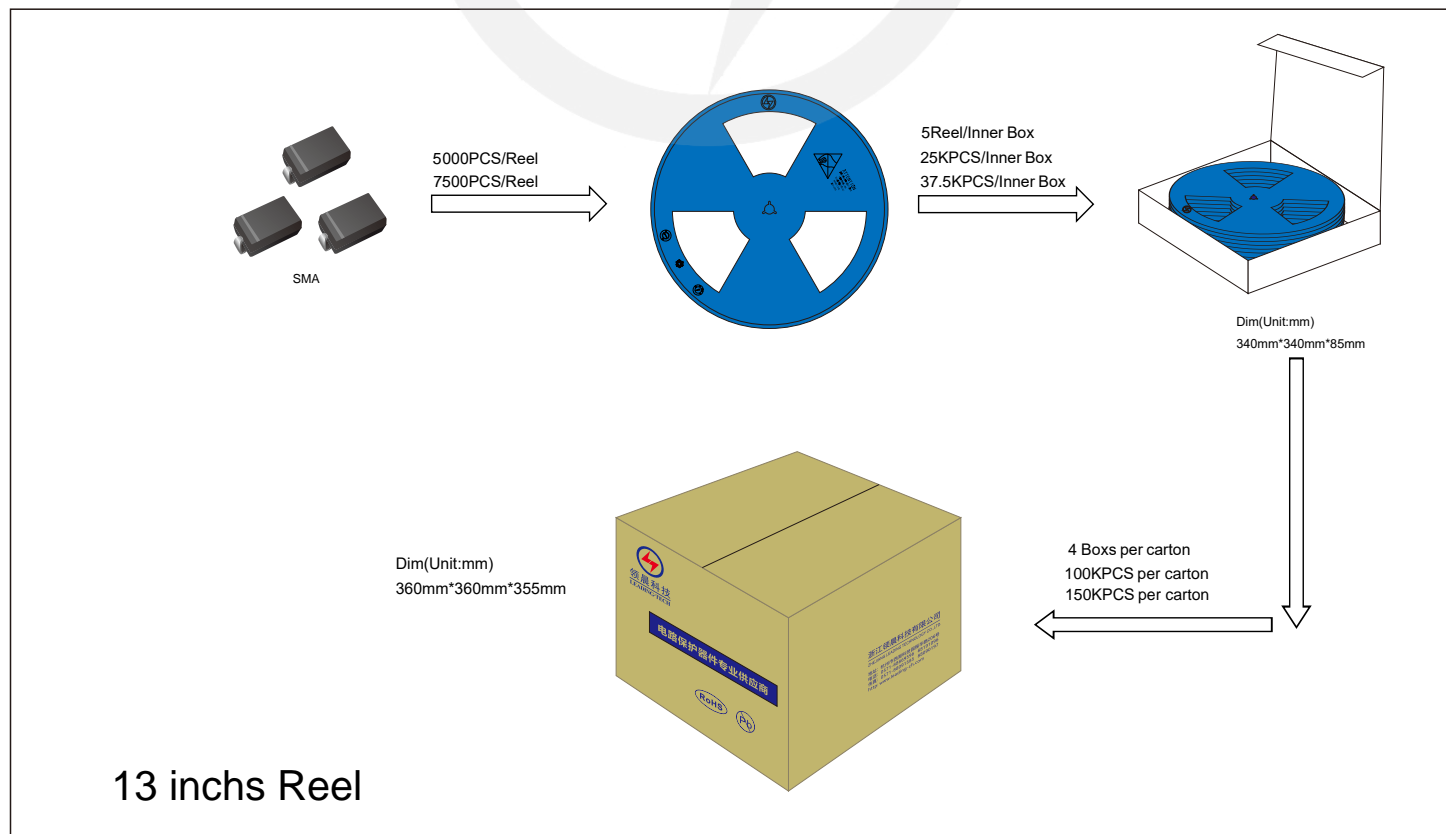


Reel Dimensions

Unit : mm



Packaging





Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\ min}$)	150°C
-Temperature Max ($T_{S\ max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\ max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.03.16	2024.03.16	3.0	New File	/	Ding	
02	2025.06.16	2025.06.16	3.1	Update packaging information	/	Ding	