



SM520 GENERAL PURPOSE RECTIFIER

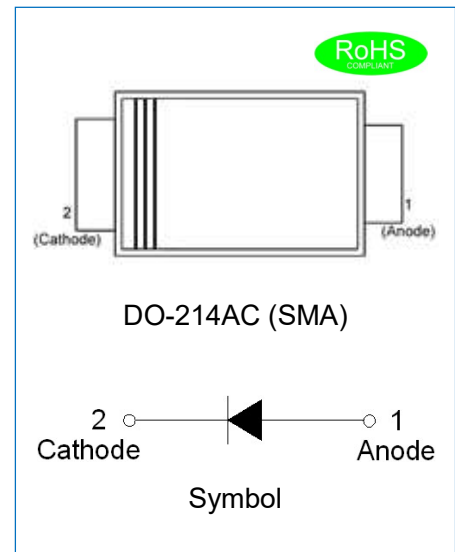
Rev.2.3

DESCRIPTION

- ✧ Plastic package has underwriters laboratories flammability classification 94V-0
- ✧ For surface mounted applications in order to optimize board space
- ✧ Glass passivated chip junction
- ✧ Lead free in compliance with EU RoHS 2011/65/EU directive
- ✧ HBM class3B
- ✧ Meets MSL level 1

MECHANICAL DATA

- ✧ Case: JEDEC DO-214AC molded plastic
- ✧ Terminals: Solder plated, solderable per J-STD-002
- ✧ Polarity: Color band denotes cathode end
- ✧ Weight: 0.0673 gram



ABSOLUTE MAXIMUM RATING AND ELECTRICAL CHARACTERISTICS

(Rating at 25°C ambient temperature unless otherwise specified.)

Parameter	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 current at $T_L=100^{\circ}\text{C}$	$I_{F(AV)}$	1.5	A
Peak forward surge current: 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	I_{FSM}	35	A
Maximum forward voltage @ $I_F=1.5\text{A}$	V_F	1.15	V
Maximum DC reverse current at rated DC blocking voltage	$T_j=25^{\circ}\text{C}$	I_R	5 μA
	$T_j=150^{\circ}\text{C}$		400 μA
Typical junction capacitance $V_R=4.0\text{V}$, $f=1\text{MHz}$	C_J	8	pF
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	$^{\circ}\text{C}$

THERMAL RESISTANCES

Symbol	Parameter	SM520	Unit
$R_{th(j-a)}$	Junction to ambient (note1)	75	$^{\circ}\text{C/W}$

Note1: Thermal resistance from junction to ambient mounted on P.C.B. with 4.0 mm x 4.0 mm copper pad areas.

MARKING



SM	Surface Mount
5	$I_{F(AV)}=1.5\text{A}$
20	$V_{RRM}:2000\text{V}$

$\underline{x}H1$: Month, 1、2、3 ~ 9、A、B、C

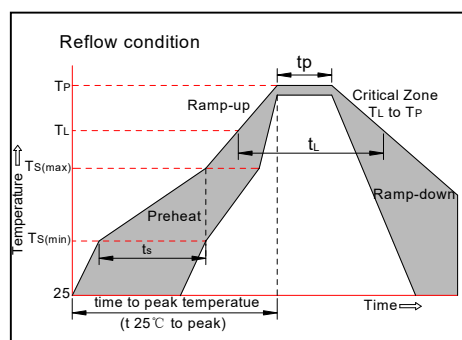
$3\underline{x}1$:

2018	2019	2020	2021	2022	2023	2024
H	I	J	K	L	M	N
2025	2026	2027	2028	2029	2030	...
O	P	Q	R	S	T	...

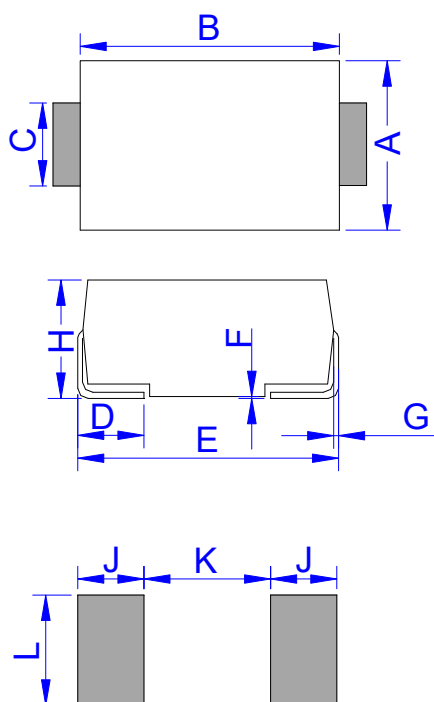
$3H\underline{x}$: Batch number

SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 $^{\circ}\text{C}$
	-Temperature Max($T_{s(max)}$)	+200 $^{\circ}\text{C}$
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3 $^{\circ}\text{C/sec. Max}$
$T_{s(max)}$ to T_L - Ramp-up Rate		3 $^{\circ}\text{C/sec. Max}$
Reflow	-Temperature(T_L)(Liquidus)	+217 $^{\circ}\text{C}$
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5) $^{\circ}\text{C}$
Time within 5 $^{\circ}\text{C}$ of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6 $^{\circ}\text{C/sec. Max}$
Time 25 $^{\circ}\text{C}$ to Peak Temp (T_p)		8 min. Max
Do not exceed		+260 $^{\circ}\text{C}$



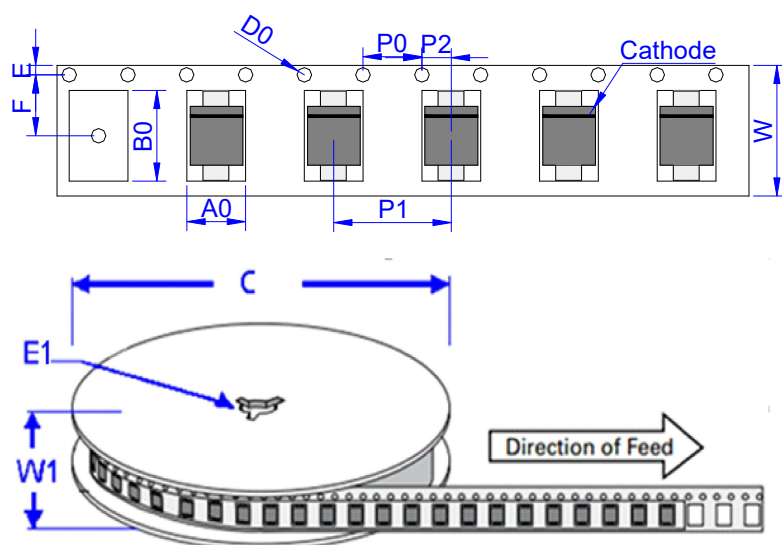
PACKAGE MECHANICAL DATA



DO-214AC (SMA)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	

TAPE AND REEL SPECIFICATION-SMA



Ref.	Dimensions	
	Millimeters	Inches
A0	2.79 ± 0.3	0.110 ± 0.012
B0	5.33 ± 0.3	0.210 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	4.00 ± 0.2	0.157 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

OUTLINE	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)
TAPING	0.0673	7,500	120,000	330

CHARACTERISTICS CURVE

FIG.1: Typical forward characteristics

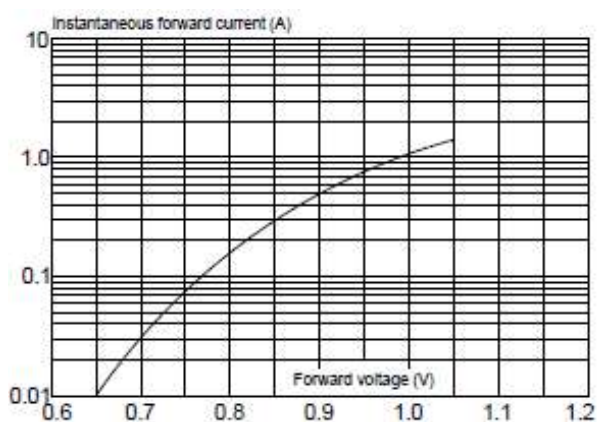


FIG.2: Typical reverse characteristics

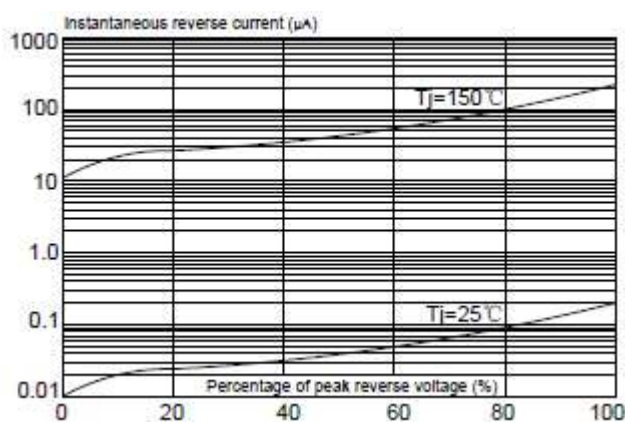


FIG.3: Maximum non-repetitive peak forward surge current

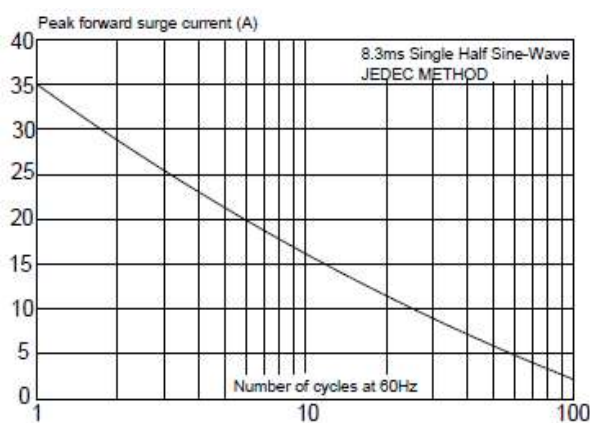
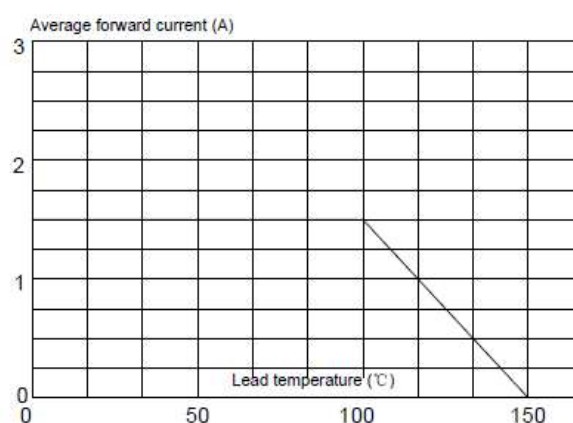


FIG.4: Forward current derating curve



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