



## SS52F THRU SS520F

VOLTAGE RANGE	20 to 200 Volts
CURRENT	5.0 Ampere

## Features

SMAFL



- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- Built-in strain relief, ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed: 260 C/10 seconds at terminals



## Mechanical Data

- Case: Transfer molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead :Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.00095ounce, 0.028grams

## 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 derate current by 20%

TYPE NUMBER	SYMBOL	SS 52F	SS 54F	SS 55F	SS 56F	SS 58F	SS 510F	SS 515F	SS 520F	UNIT
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	20	40	50	60	80	100	150	200	Volts
Maximum RMS Voltage	$V_{RMS}$	14	28	35	42	56	70	105	140	Volts
Maximum DC Blocking Voltage	$V_{DC}$	20	40	50	60	80	100	150	200	Volts
Maximum Average Forward Rectified Current at $T_L$ see figure 1 $T_L = 100^\circ\text{C}$	$I_{(AV)}$	5.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	$I_{FSM}$	125								Amps
Maximum Instantaneous Forward Voltage @ 5.0A <sup>(Note1)</sup>	$V_F$	0.55	0.70		0.85		0.95		Volts	
Maximum DC Reverse Current at rated DC Blocking Voltage per element	$T_A = 25^\circ\text{C}$	0.1							0.01	mA
	$T_A = 125^\circ\text{C}$	20.0				10.0		2.0		
Typical Thermal Resistance <sup>(Note 2)</sup>	$R_{\theta JA}$	55								$^\circ\text{C}/\text{W}$
	$R_{\theta JL}$	25								
Diode junction capacitance <sup>(Note 3)</sup>	$C_j$	60								pF
Operating Junction Temperature	$T_J$	-55 to +150						-65 to +175		$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150								$^\circ\text{C}$

Notes:

1. Pulse test: 300 $\mu\text{s}$  pulse width, 1% duty cycle.
2. Thermal resistance from Junction to ambient and from junction to lead mounted on PCB. with 0.3 $\times$ 0.3" (8.0  $\times$  8.0mm) copper pad areas.
3. f=1MHz and applied 4V DC reverse voltage.

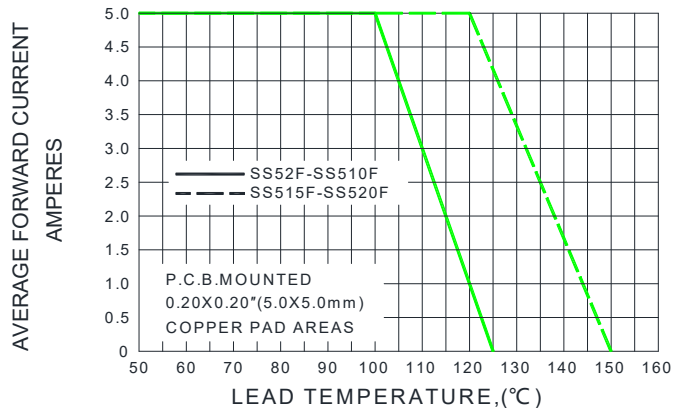


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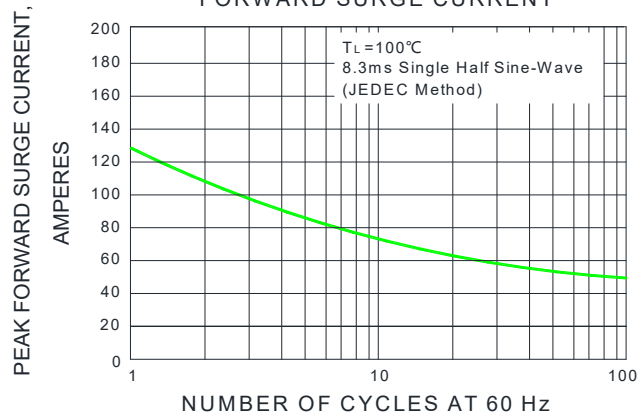
VOLTAGE RANGE 20 to 200 Volts  
CURRENT 5.0 Ampere

Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

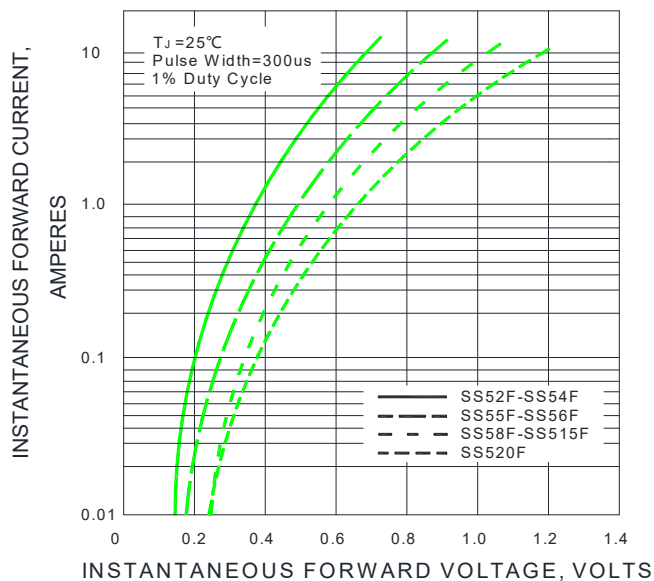
F1G.1-FORWARD CURRENT DERATING CURVE



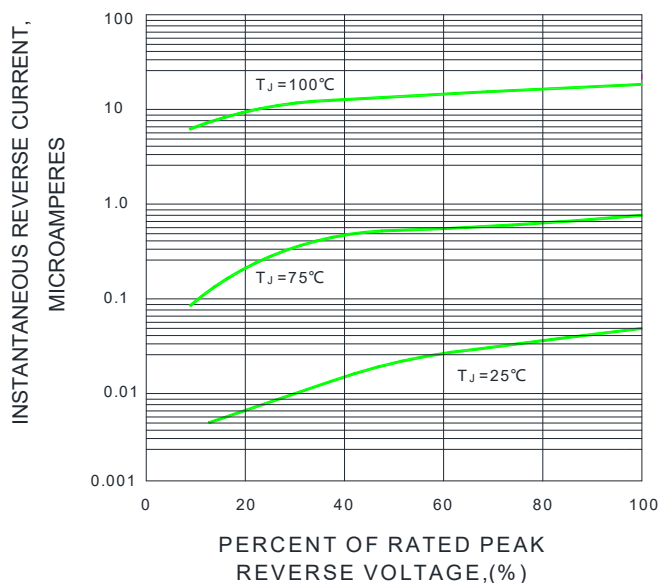
F1G.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



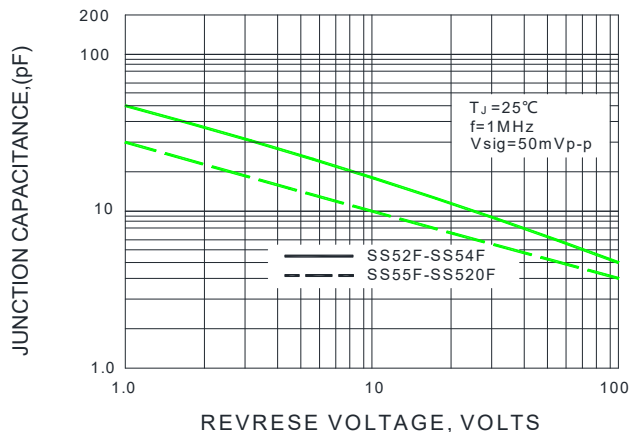
F1G.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



F1G.4-TYPICAL REVERSE CHARACTERISTICS



F1G.5-TYPICAL JUNCTION CAPACITANCE

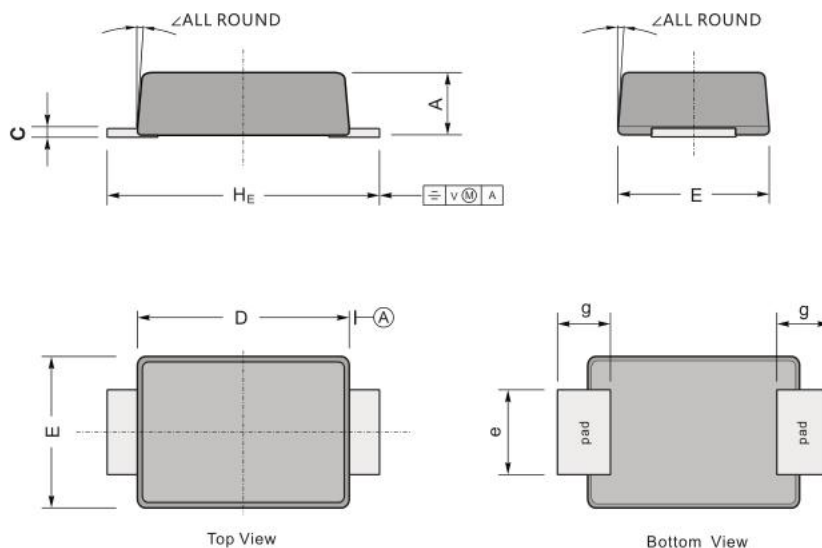




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Package Outline Dimensions in inches (millimeters)



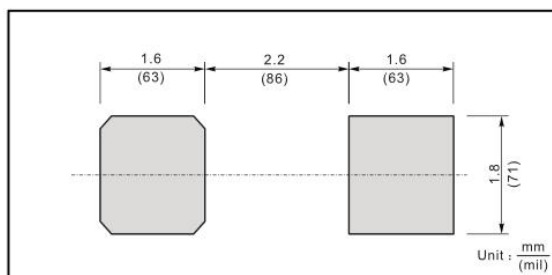
UNIT		A	C	D	E	e	g	H <sub>E</sub>	$\angle$
mm	max	1.10	0.20	3.70	2.70	1.60	1.20	4.90	5-7°
	min	0.90	0.12	3.30	2.40	1.30	0.80	4.40	
mil	max	43	7.90	146	106	63	47	193	
	min	35	4.70	130	94	51	31	173	

The Recommended Mounting Pad Size

Marking

Type number	Marking code
SS52F	SS52
SS54F	SS54
SS55F	SS55
SS56F	SS56
SS58F	SS58
SS510F	SS510
SS515F	SS515
SS520F	SS520

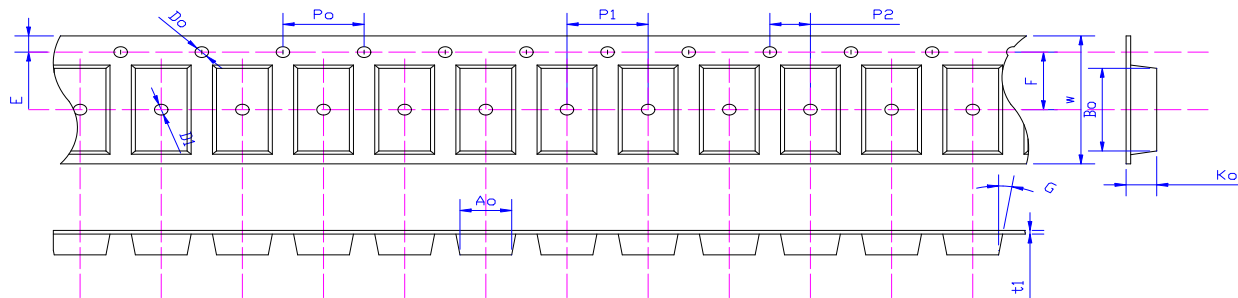
The recommended mounting pad size





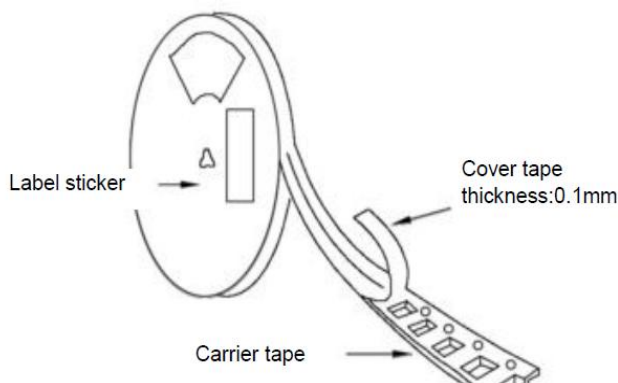
### Packing Requirments

- PS black anti-static carrier tape packing



Specifications	$A_o$	$B_o$	$K_o$	$P_o$	$W$	$t_1$
SMAFL	$2.83 \pm 0.10$	$4.90 \pm 0.10$	$1.45 \pm 0.10$	$4.00 \pm 0.1$	$12.0 \pm 0.05$	$0.23 \pm 0.02$

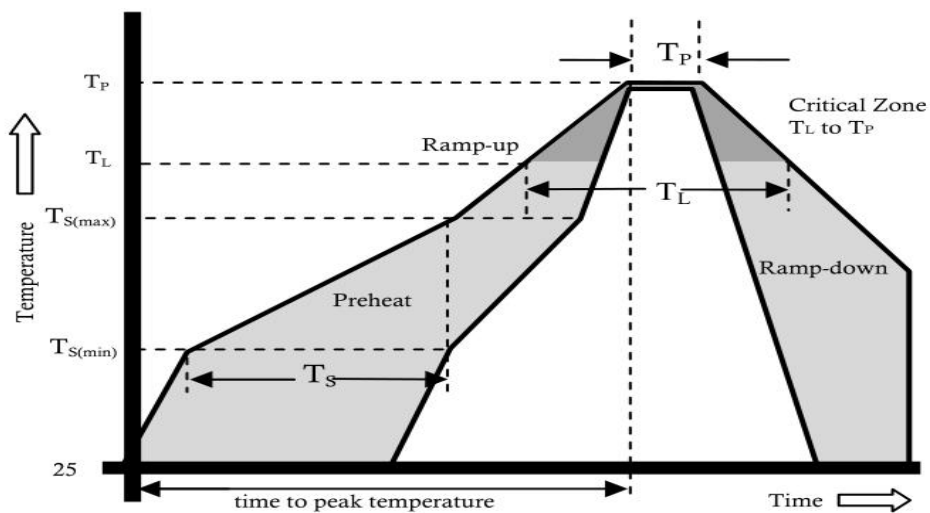
- 13 "antistatic plastic reel



DEVICE TYPE	13" Reel			
	Q'TY/REEL(pcs)	REEL/BOX	BOX/CARTOON	Q'TY/CARTON(pcs)
SMAFL	10000	2	8	160000



Reflow Profile



Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60-180 secs.
Average ramp up rate(Liquidus Temp( $T_L$ ) to peak)		3°C/sec. Max.
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max.
Reflow	Temperature ( $T_L$ )(Liquidus)	+217°C
	Temperature ( $T_P$ )	60-150 secs.
Peak Temp ( $T_P$ )		+(260+0/-5)°C
Time within 5°C of actual Peak Temp ( $T_P$ )		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp ( $T_P$ )		8 min. Max.
Do not exceed		+260°C



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