SM120AF THRU SM1200AF

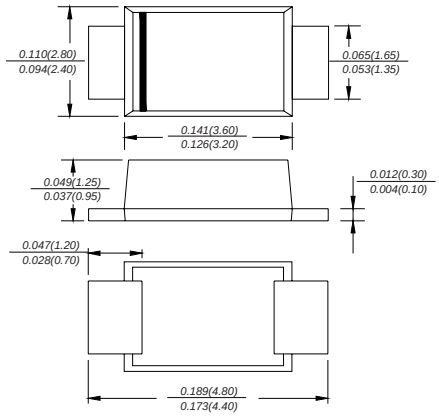
1.0A Surface Mount Schottky Barrier Rectifiers

Features

- 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℃/10 seconds at terminals
- Compliant to RoHS 2.0
- Compliant to Halogen-free

Package outline

SMAF



Dimensions in inches and (millimeters)

Mechanical data

- **Case**: JEDEC SMAF molded plastic body
- **Terminals**: Solder plated, solderable per MIL-STD-750, Method 2026
- **Polarity**: Color band denotes cathode end
- **Mounting Position**: Any

Maximum ratings and Electrical Characteristics (AT T_A=25℃ unless otherwise noted)

PARAMETER	*SYMBOLS*	SM120AF	SM140AF	SM160AF	SM1100AF	SM1200AF	UNITS
Maximum repetitive peak reverse voltage	V_{RRM}	20	40	60	100	200	V
Maximum RMS voltage	V_{RMS}	14	28	42	70	140	V
Maximum DC blocking voltage	V_{DC}	20	40	60	100	200	V
Maximum average forward rectified current at T_L(see fig.1)	$I_{(AV)}$	1.0					A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	30.0					A
Maximum instantaneous forward voltage at 1.0A	V_F	0.55		0.70	0.85	0.95	V
Maximum DC reverse current T_A=25℃	I_R	0.5			0.1		mA
at rated DC blocking voltage T_A=100℃		10.0			5.0	2.0	
Typical junction capacitance (NOTE 1)	C_J	110					pF
Typical thermal resistance (NOTE 2)	$R_{\theta JA}$	90					℃/W
Operating junction temperature range	T_J,	-55 to +150					℃
Storage temperature range	T_{STG}	-55 to +150					℃

Note:1.Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2.P.C.B. mounted with 2.0x2.0"(5.0x5.0cm) copper pad areas

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Rating and characteristic curves

FIG. 1- FORWARD CURRENT DERATING CURVE

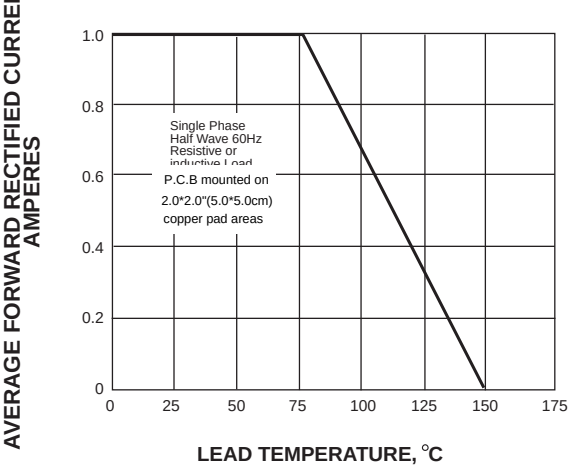


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

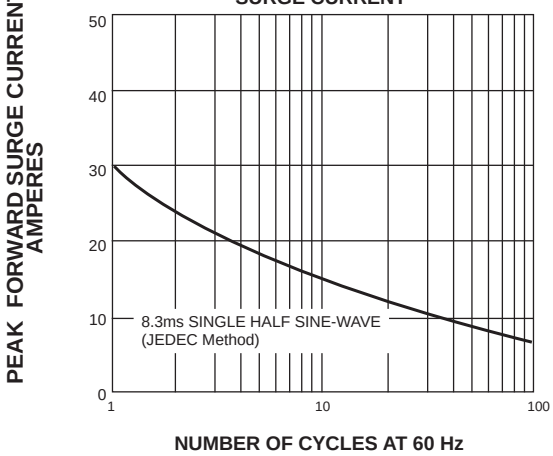


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

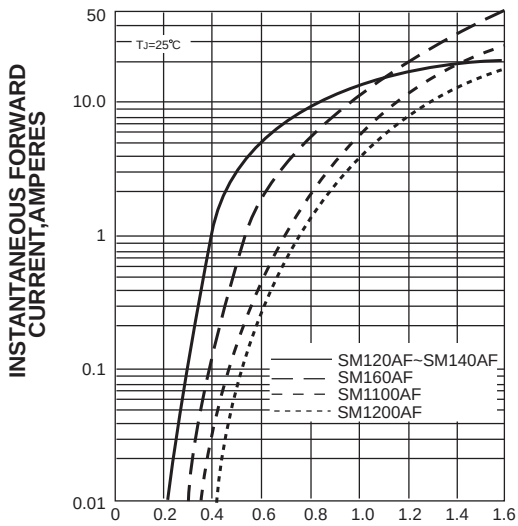


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

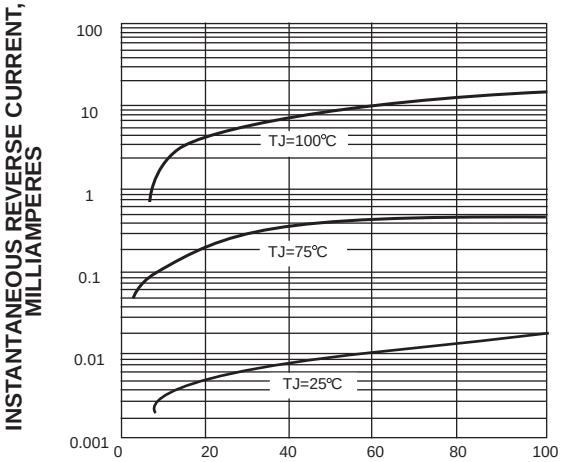


FIG. 5-TYPICAL JUNCTION CAPACITANCE

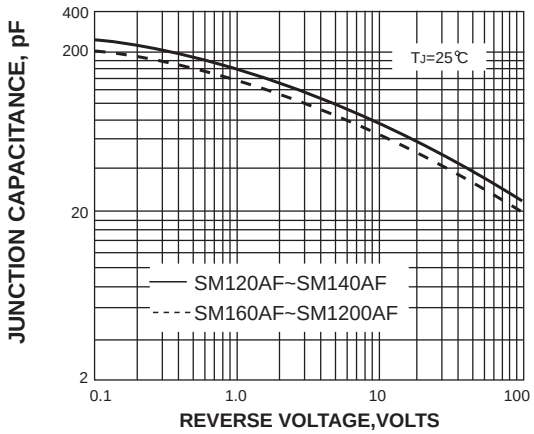
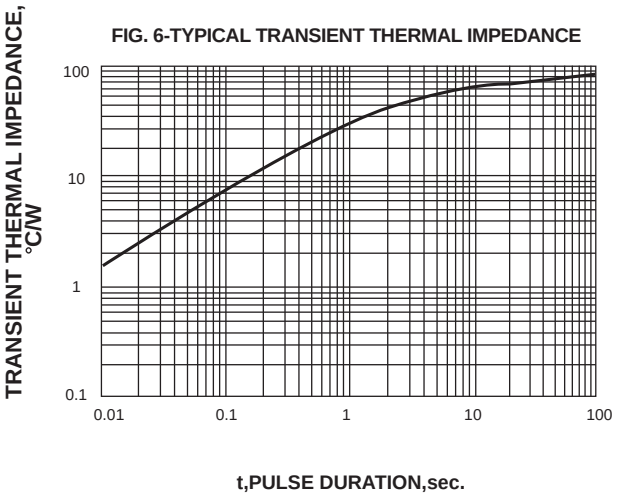


FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



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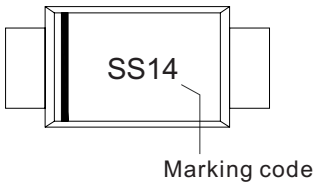
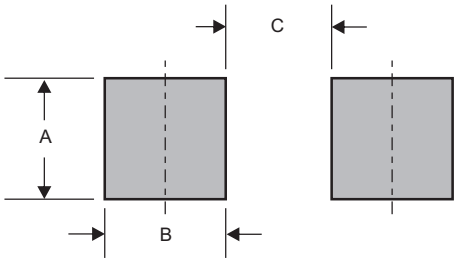
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code	Example
SM120AF	SS12	
SM140AF	SS14	
SM160AF	SS16	
SM1100AF	SS110	
SM1200AF	SS120	

Suggested solder pad layout

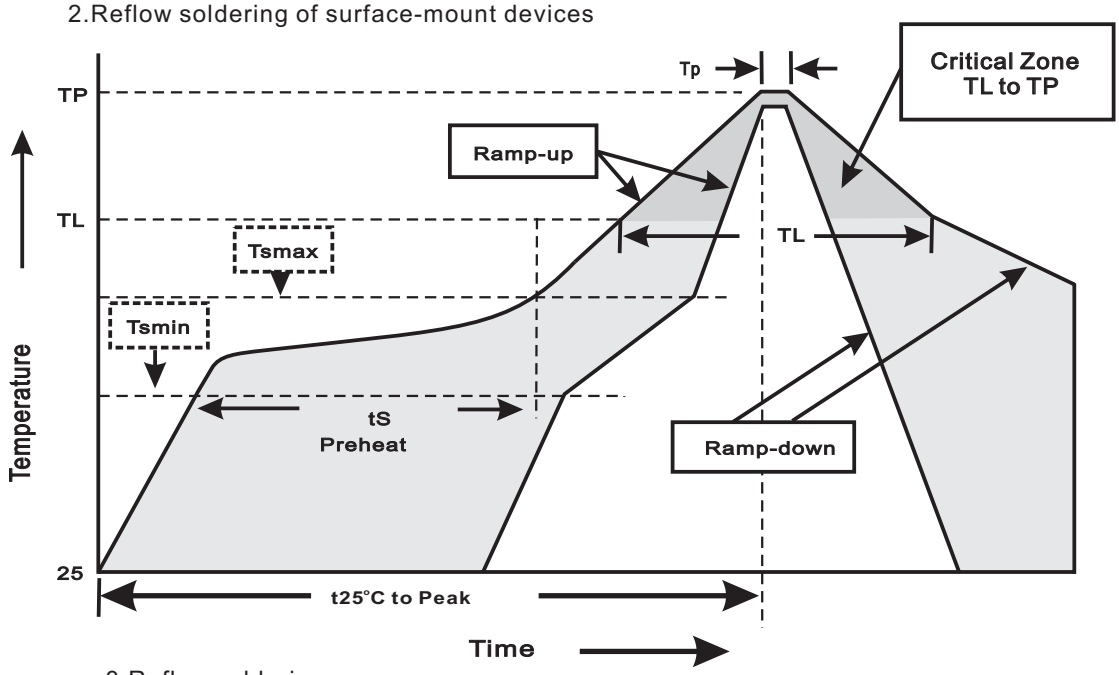


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMAF	0.110 (2.80)	0.063 (1.60)	0.087 (2.20)

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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