STPS120MF-FS

SCHOTTKY BARRIER RECTIFIER

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop



Mechanical Data

- Case: SOD-123HE
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Weight: 0.01 grams (approximate)



SOD-123HE

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

PARAMETER	*SYMBOLS*	STPS120MF-FS	UNITS
Maximum repetitive peak reverse voltage	V_{RRM}	20	V
Maximum RMS voltage	V_{RMS}	20	V
Maximum DC blocking voltage	V_{DC}	20	V
Maximum average forward rectified current at T_L(see fig.1)	$I_{(AV)}$	2.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	50	A
Maximum instantaneous forward voltage at 1.0A	V_F	0.45	V
Maximum instantaneous forward voltage at 2.0A	V_F	0.54	
Maximum DC reverse current T_A=25℃	I_R	0.1	mA
at rated DC blocking voltage T_J=85 ℃		10.0	
Typical junction capacitance (NOTE 1)	C_J	100	pF
Typical thermal resistance (NOTE 2)	$R_{\theta JA}$	60	°C/W
Operating junction temperature range	T_J,	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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

Rating and characteristic curves

FIG. 1- FORWARD CURRENT DERATING CURVE

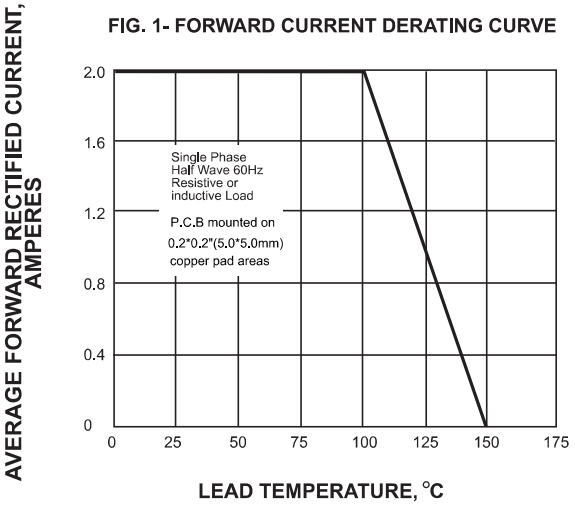


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

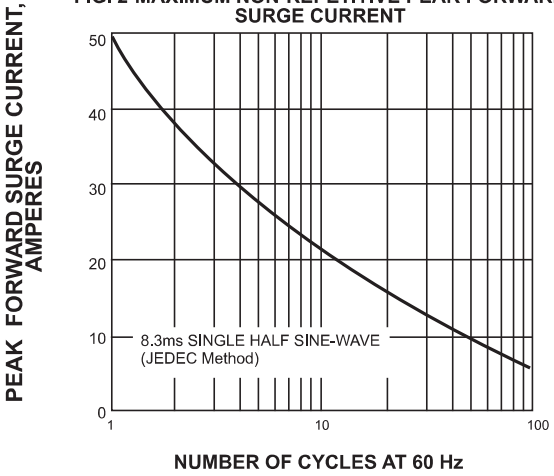


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

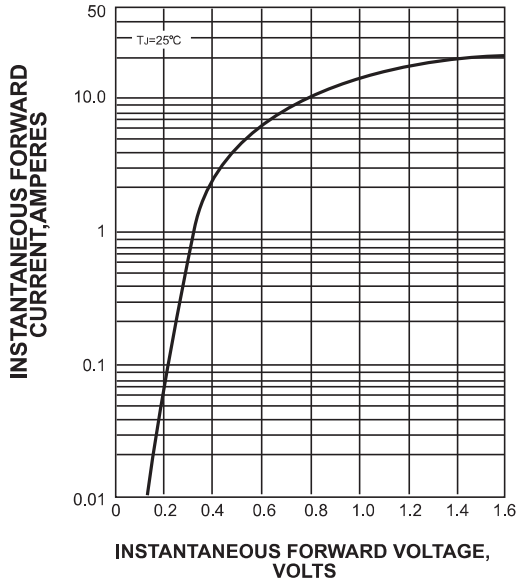


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

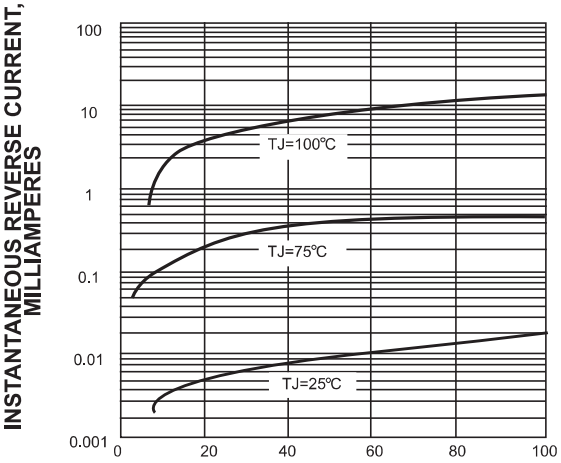


FIG. 5-TYPICAL JUNCTION CAPACITANCE

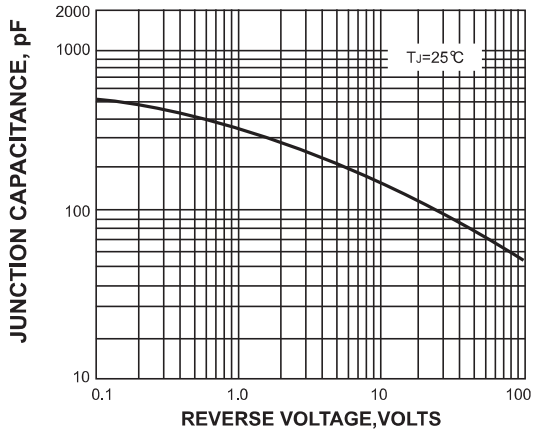
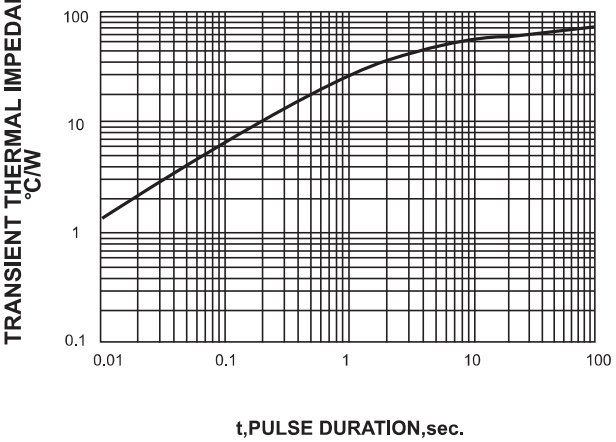


FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



Pinning information

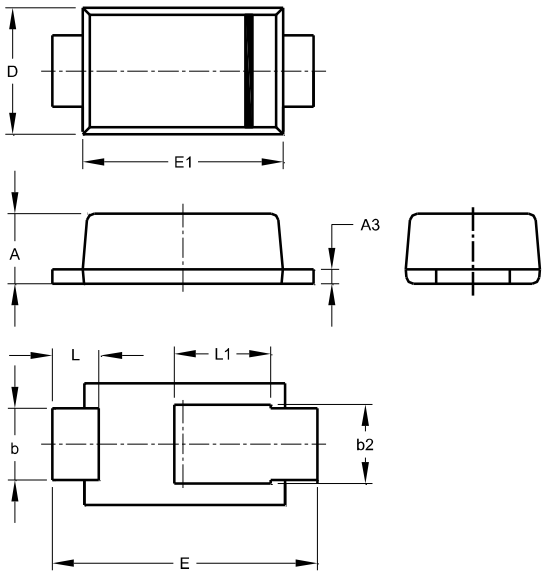
Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
STPS120MF-FS	F06A

Package outline

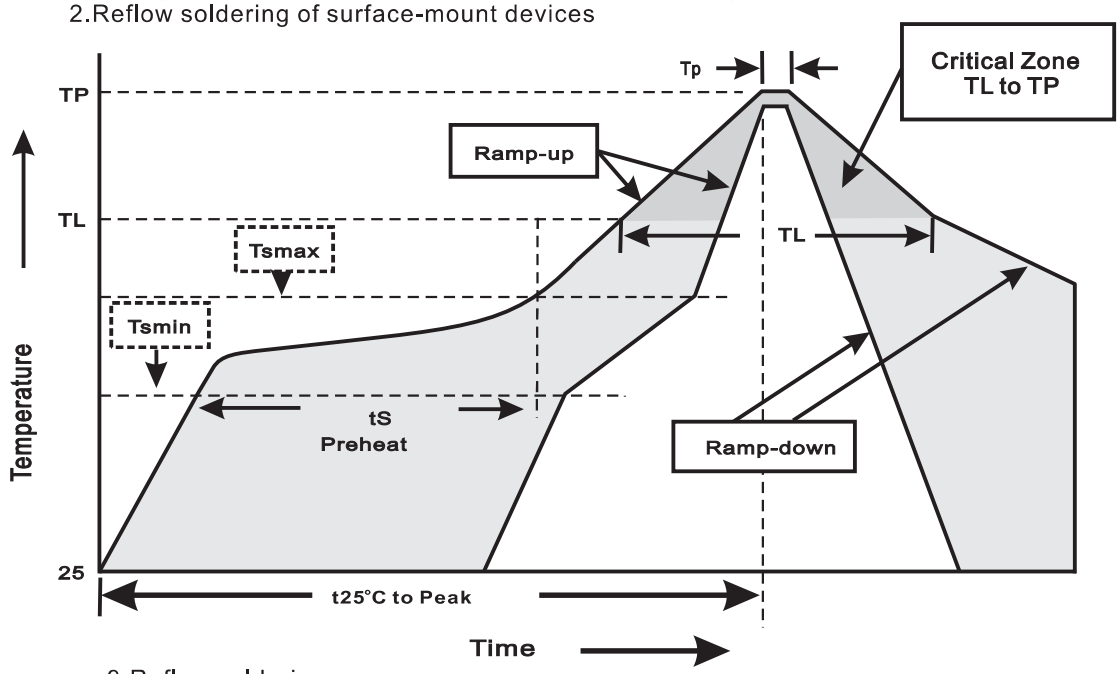
SOD-123HE



SOD-123HE		
Dim	**Min**	**Max**
A	0.85	1.05
A3	0.10	0.30
b	0.85	1.20
b2	1.05	1.35
D	1.65	1.95
E	3.50	3.90
E1	2.70	3.20
L	0.55	0.75
L1	1.40	1.60
All Dimensions in mm		

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