

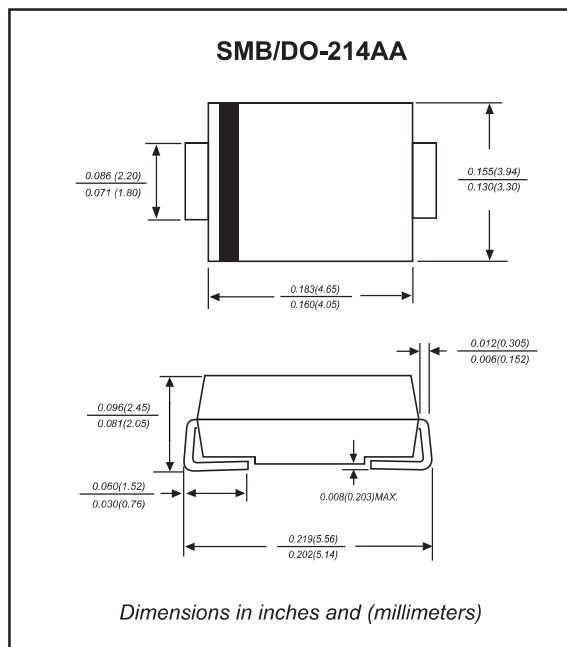
Features

- Fast switching speed.
- Low profile surface mounted application in order to optimize board space.
- Surface mount package ideally suited for automatic insertion.
- Low power loss, high efficiency.
- High forward surge current capability.
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SMB/DO-214AA
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

Package outline



Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.2	I_O			4.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	I_{FSM}			100	A
Reverse current	$V_R = V_{RRM}$ $T_A = 25^\circ\text{C}$	I_R			5.0	μA
	$V_R = V_{RRM}$ $T_A = 100^\circ\text{C}$				50	
Thermal resistance	Junction to ambient NOTE 1	$R_{\theta JA}$		60		$^\circ\text{C/W}$
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	C_J		70		pF
Storage temperature		T_{STG}	-65		+175	$^\circ\text{C}$

SYMBOLS	V _{RRM} ^{*1} (V)	V _{RMS} ^{*2} (V)	V _R ^{*3} (V)	V _F ^{*4} (V)	trr ^{*5} (ns)	Operating temperature T _J , (°C)
FSTT3R02U	200	140	200	0.89	25	-55 to +150
FSTT3R04U	400	280	400	1.28	50	
FSTT3R06U	600	420	600			

Note 1. Reverse recovery time test condition, $I_F=0.5A$, $I_R=1.0A$, $I_{RR}=0.25A$

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@ $I_F=4.0A$

*5 Maximum Reverse recovery time, note 1

Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

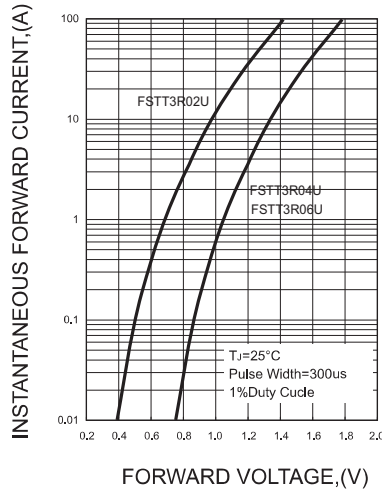


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

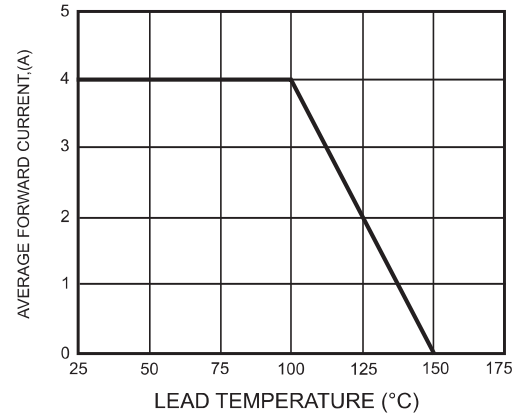


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

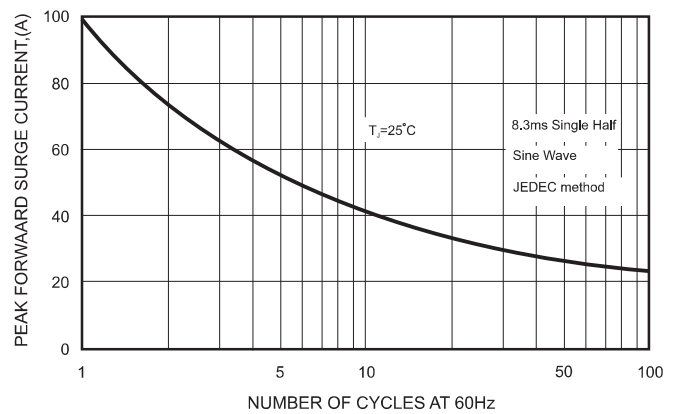
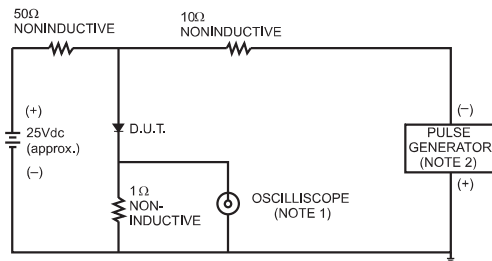


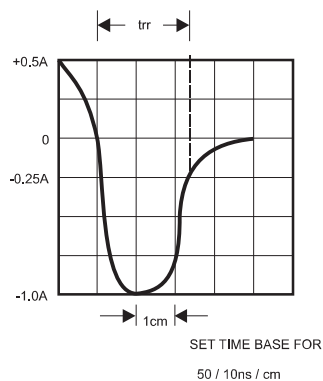
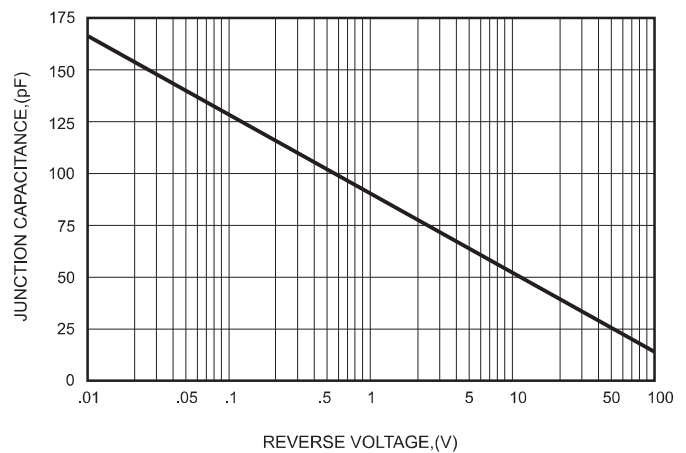
FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.

2. Rise Time = 10ns max., Source Impedance = 50 ohms.

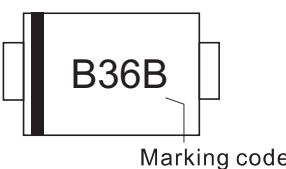
FIG.5-TYPICAL JUNCTION CAPACITANCE



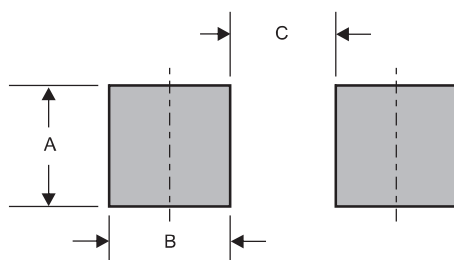
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code	Example
FSTTH3R02U FSTTH3R04U FSTTH3R06U	B32B B34B B36B	

Suggested solder pad layout

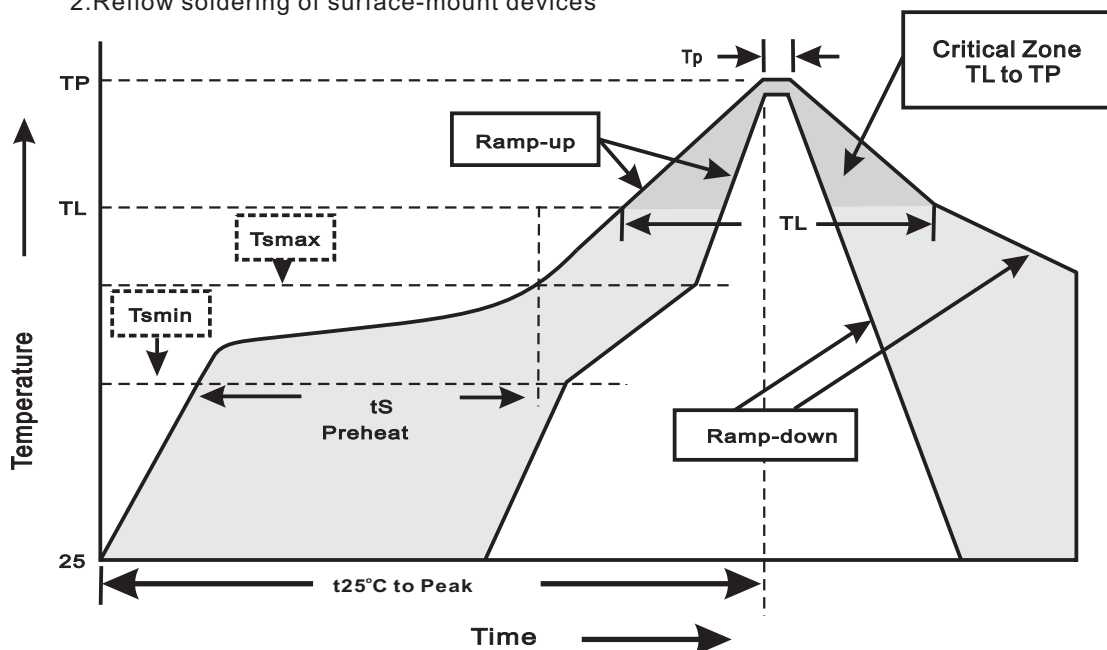


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMB	0.078 (2.00)	0.059 (1.50)	0.110 (2.80)

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)	$<3^{\circ}\text{C}/\text{sec}$
Preheat -Temperature Min(T_{min}) -Temperature Max(T_{max}) -Time(min to max)(t_s)	150°C 200°C $60\sim 120\text{sec}$
T_{max} to T_L -Ramp-upRate	$<3^{\circ}\text{C}/\text{sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C $60\sim 260\text{sec}$
Peak Temperature(T_P)	$255^{\circ}\text{C}-0/+5^{\circ}\text{C}$
Time within 5°C of actual Peak Temperature(t_P)	$10\sim 30\text{sec}$
Ramp-down Rate	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$