

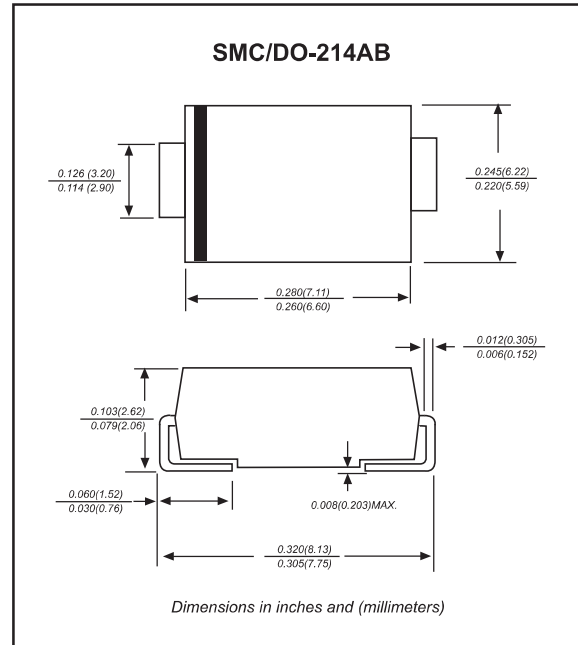
**Features**

- 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, DO-214AB /SMC
- 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	$\mu\text{A}$
	$V_R = V_{RRM} T_A = 100^{\circ}\text{C}$				50	
Thermal resistance	Junction to ambient NOTE 1	$R_{\theta JA}$		40		$^{\circ}\text{C}/\text{W}$
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 <sup>*5</sup> (ns)	Operating temperature $T_J$ , ( $^{\circ}\text{C}$ )
MURS420C	200	140	200	0.89	25	
MURS440C	400	280	400	1.28	50	
MURS460C	600	420	600			

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

\*1 Repetitive peak reverse voltage

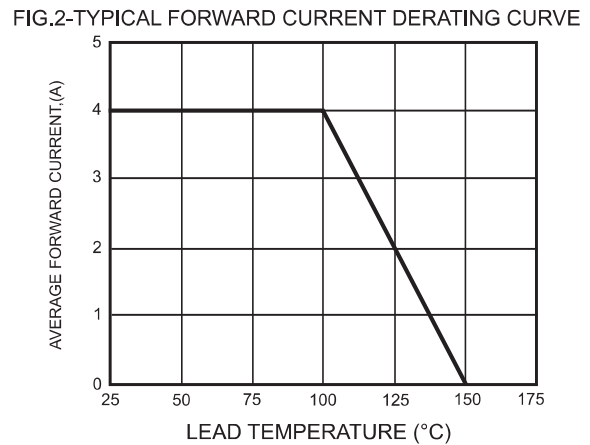
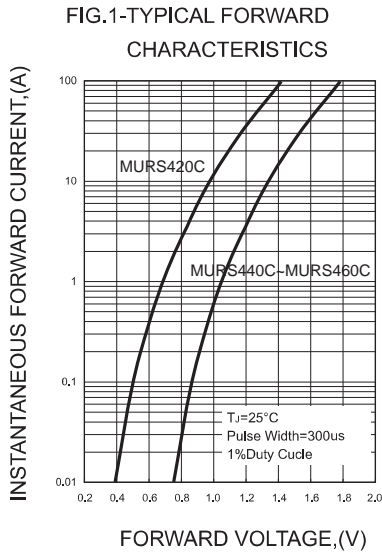
\*2 RMS voltage

\*3 Continuous reverse voltage

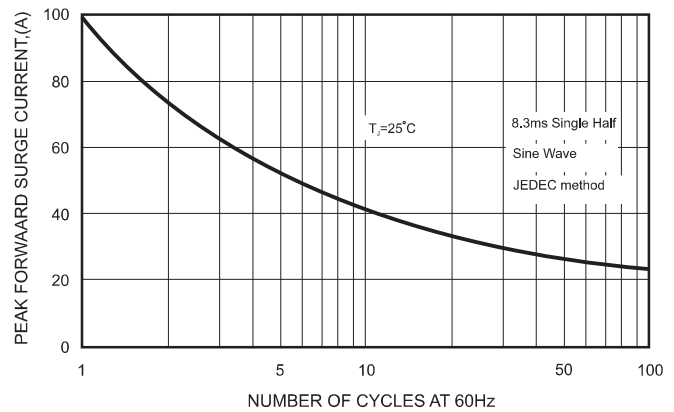
\*4 Maximum forward voltage@ $I_F=4.0\text{A}$

\*5 Maximum Reverse recovery time, note 1

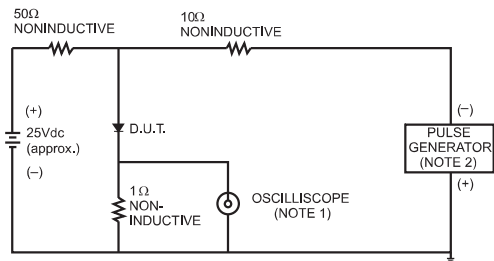
**Rating and characteristic curves**



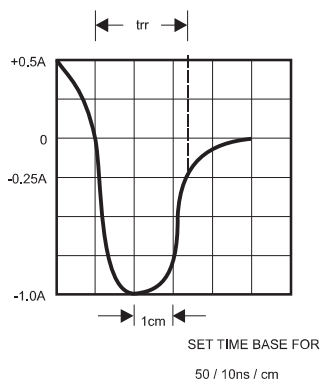
**FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**



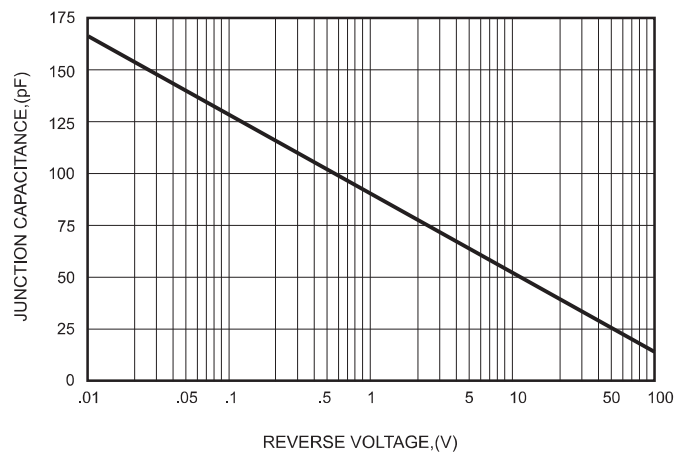
**FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS**



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**



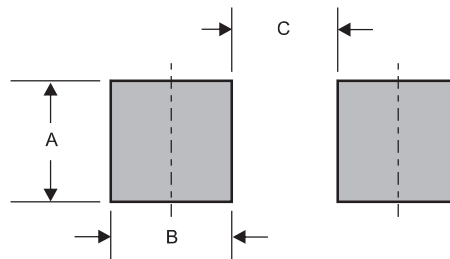
**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

**Marking**

Type number	Marking code	Example
MURS420C	U3D	
MURS440C	U3G	
MURS460C	U3J	

**Suggested solder pad layout**

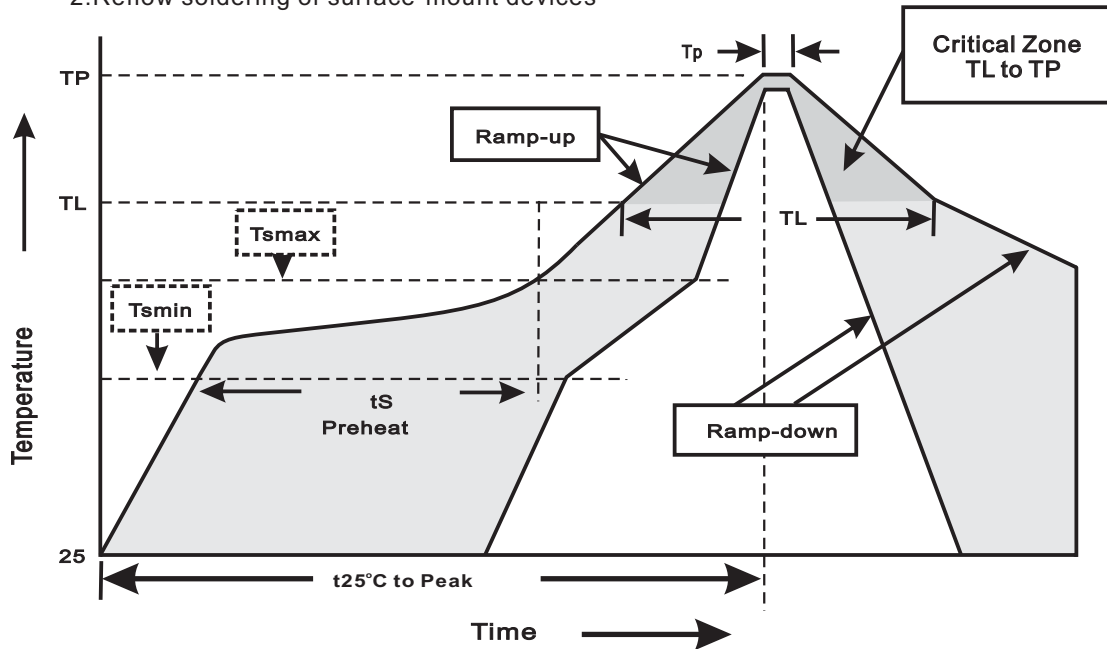


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMC	0.132 (3.30)	0.100 (2.50)	0.176(4.40)

**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(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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