

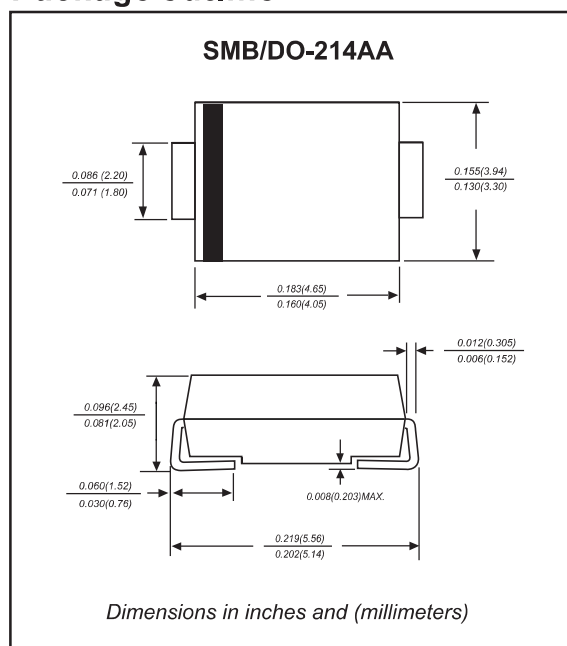
## Features

- Ideal for surface mounted application
- Low profile surface mounted application in order to optimize board space
- Built-in strain relief design
- Ultra fast recovery time for high efficient
- Glass passivated chip junction
- 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 (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	MURS120T3G	UNITS
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	V
Maximum RMS voltage	$V_{RMS}$	140	V
Maximum continuous reverse voltage	$V_R$	200	V
Maximum average forward rectified current	$I_O$	1.0	A
Non-repetitive peak forward surge current 8.3ms single half sine-wave	$I_{FSM}$	40	A
Typical junction capacitance (Note 1)	$C_J$	15	pF
Operating junction temperature range	$T_J$	-55 to +175	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-65 to +175	$^{\circ}\text{C}$

## Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	MURS120T3G	UNITS
Maximum instantaneous forward voltage at $I_F=1.0\text{A}$ $T_J=25^{\circ}\text{C}$	$V_F$	0.875	V
Maximum instantaneous forward voltage at $I_F=1.0\text{A}$ $T_J=150^{\circ}\text{C}$	$V_F$	0.71	V
Maximum reverse leakage current at rated $V_R$ $T_J=25^{\circ}\text{C}$ $T_J=125^{\circ}\text{C}$	$I_R$	2.0 50	$\mu\text{A}$
Maximum reverse recovery time, (Note 2)	$t_{rr}$	25	ns

## Thermal characteristics

PARAMETER	SYMBOLS	MURS120T3G	UNITS
Typical thermal resistance junction to ambient , (Note 3)	$R_{\theta JA}$	25	$^{\circ}\text{C} / \text{W}$
Typical thermal resistance junction to case , (Note 3)	$R_{\theta JC}$	15	$^{\circ}\text{C} / \text{W}$

Notes 1: Measured at 1 MHz and applied reverse voltage of 4.0 VDC

2: Measured with  $I_F = 0.5\text{A}$ ,  $I_R = 1\text{A}$ ,  $t_{rr} = 0.25\text{A}$

3: Mounted on FR-4 PCB Copper, minimum recommended pad layout

## Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

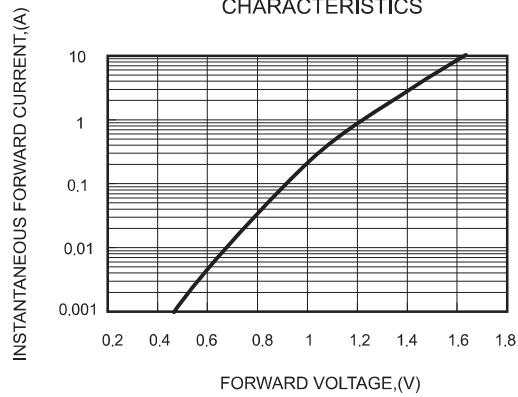


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

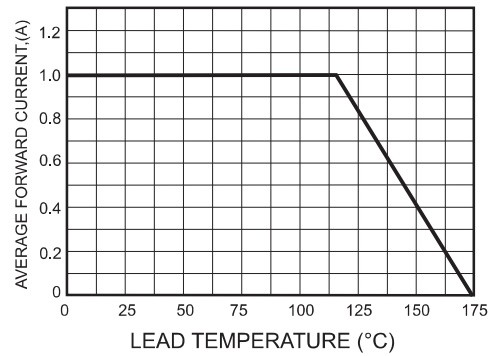


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

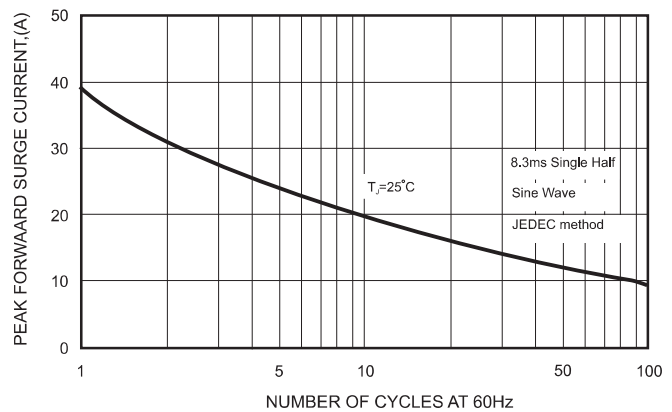
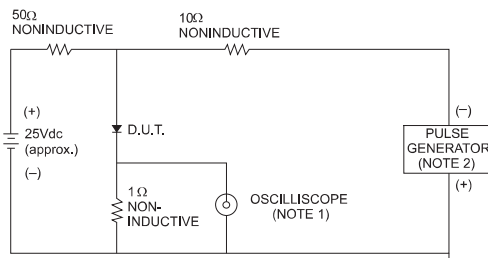


FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm, 22pF.  
2. Rise Time= 10ns max., Source Impedance= 50 ohms.

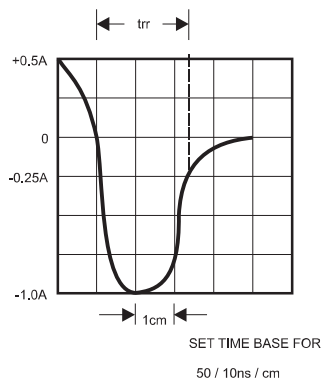
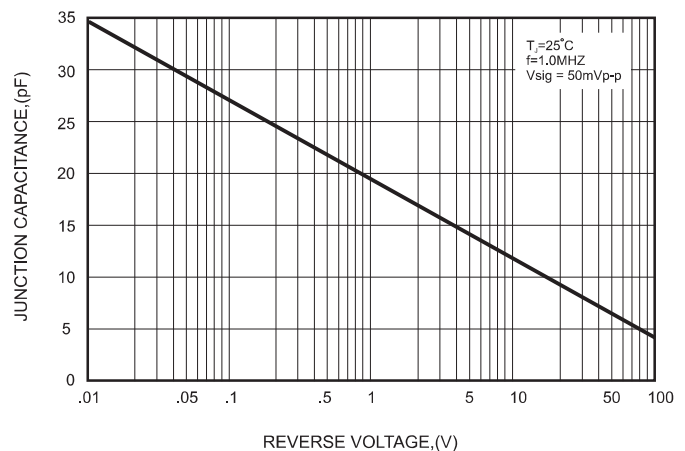




FIG.5-TYPICAL JUNCTION CAPACITANCE



## Pinning information

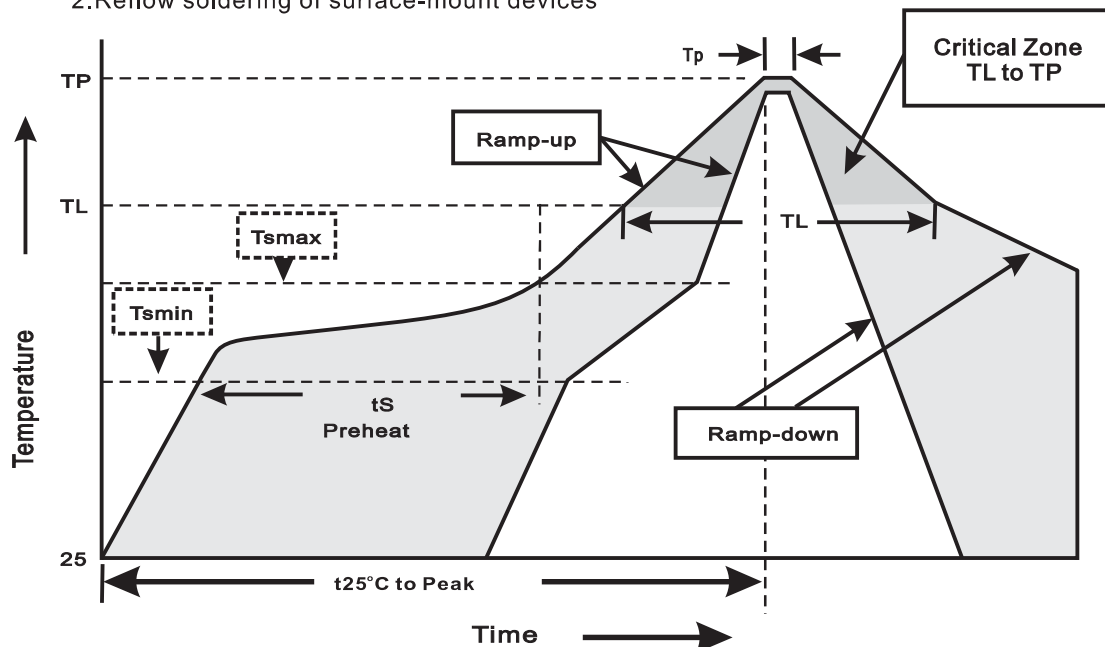
Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

## Marking

Type number	Marking code
MURS120T3G	U1D

## 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 <sub>L</sub> to T <sub>P</sub> )	<3°C/sec
Preheat -Temperature Min(T <sub>smmin</sub> ) -Temperature Max(T <sub>smmax</sub> ) -Time(min to max)(t <sub>s</sub> )	150°C 200°C 60~120sec
T <sub>smmax</sub> to T <sub>L</sub> -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T <sub>L</sub> ) -Time(t <sub>L</sub> )	217°C 60~260sec
Peak Temperature(T <sub>P</sub> )	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t <sub>P</sub> )	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes