MRA4003T3G~MRA4007T3G

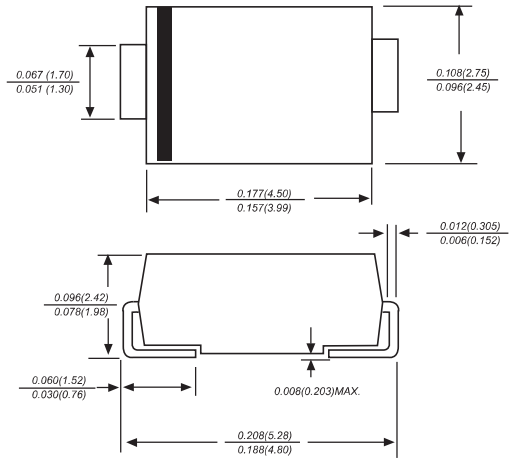
2.0A Surface Mount General Purpose Rectifiers 200V-1000V

Features

- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance
- Low profile surface mounted application in order to optimize board space
- High current capability
- High surge capability
- Glass passivated chip junction
- Lead free parts meet RoHS requirements

Package outline

SMA/DO-214AC



Dimensions in inches and (millimeters)

Mechanical data

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

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

PARAMETER	SYMBOLS	MRA4003T3G	MRA4004T3G	MRA4005T3G	MRA4006T3G	MRA4007T3G	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	140	280	420	560	700	V
Maximum continuous reverse voltage	V_R	200	400	600	800	1000	V
Maximum average forward rectified current	I_O	2.0					A
Non-repetitive peak forward surge current 8.3ms single half sine-wave (JEDEC methode)	I_{FSM}	50					A
Typical junction capacitance, Note1	C_J	30					pF
Operating junction temperature range	T_J	-55 to +150					°C
Storage temperature range	T_{STG}	-65 to +175					°C

Electrical characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	SYMBOLS	MRA4003T3G	MRA4004T3G	MRA4005T3G	MRA4006T3G	MRA4007T3G	UNIT
Maximum instantaneous forward voltage at I_F=2.0A	V_F	1.18					V
Maximum reverse leakage current at rated V_R T_J =25°C T_J =125°C	I_R	5.0 50					μA μA

Thermal characteristics

PARAMETER	SYMBOLS	MRA4003T3G	MRA4004T3G	MRA4005T3G	MRA4006T3G	MRA4007T3G	UNIT
Typical thermal resistance junction to ambient, Note2 Typical thermal resistance junction to case, Note2	$R_{\theta JA}$ $R_{\theta JC}$	48 26					°C/W °C/W

Notes 1: Measured at 1MHz and applied reverse voltage of 4.0V D.C

2: Mounted on FR-4 PCB copper, minimum recommended pad layout

Rating and characteristic curves

FIG. 1- FORWARD CURRENT DERATING CURVE

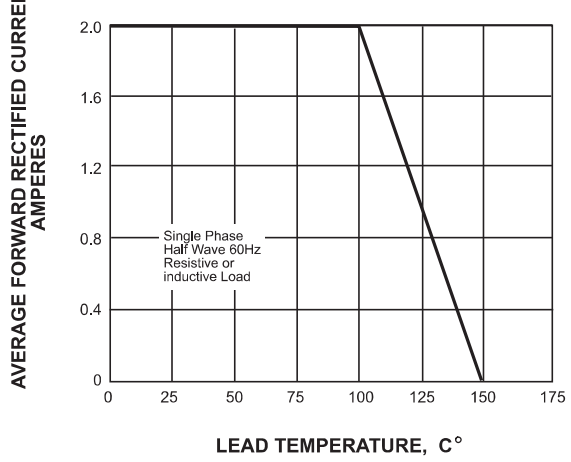


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

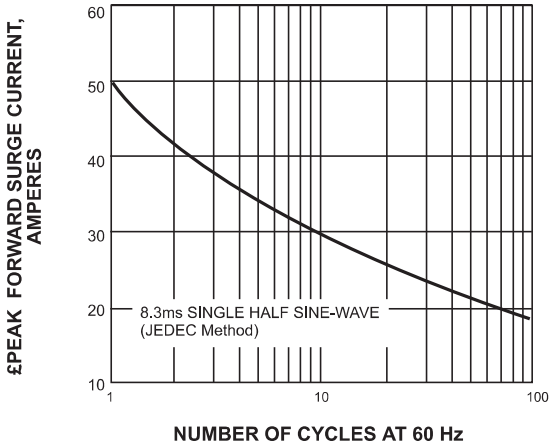


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

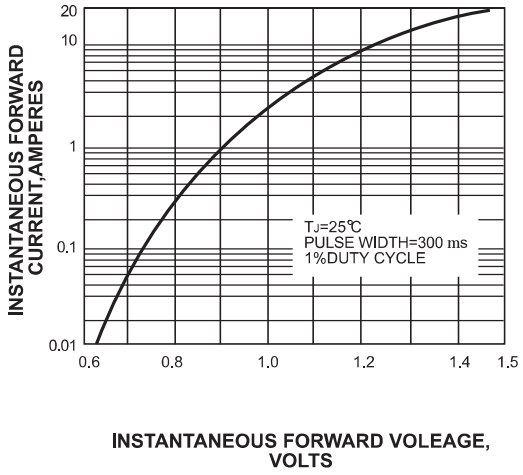


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

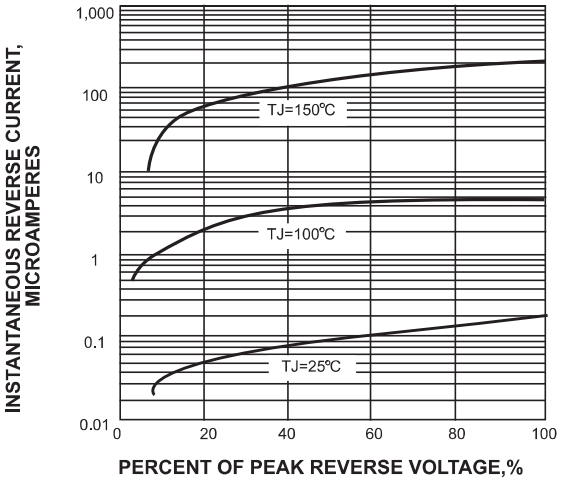


FIG. 5-TYPICAL JUNCTION CAPACITANCE

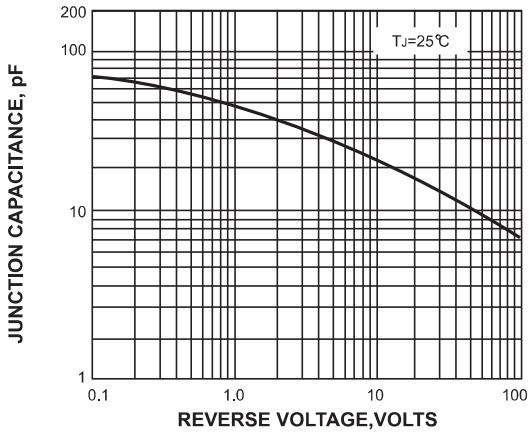
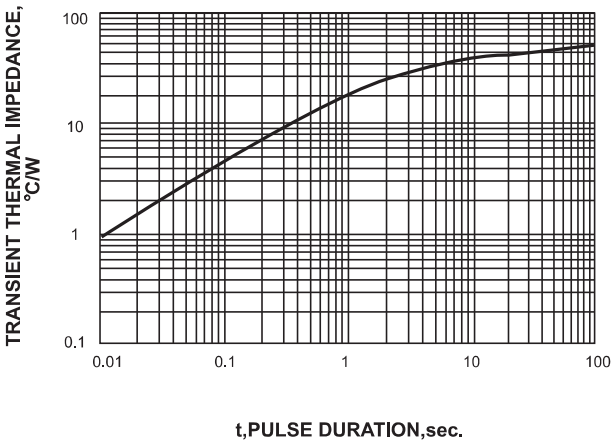


FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



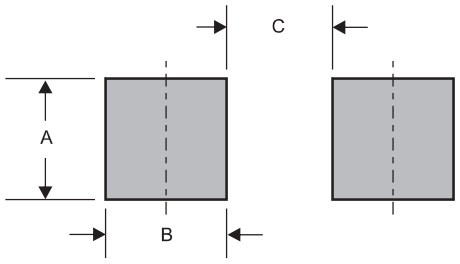
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
MRA4003T3G	R13
MRA4004T3G	R14
MRA4005T3G	R15
MRA4006T3G	R16
MRA4007T3G	R17

Suggested solder pad layout

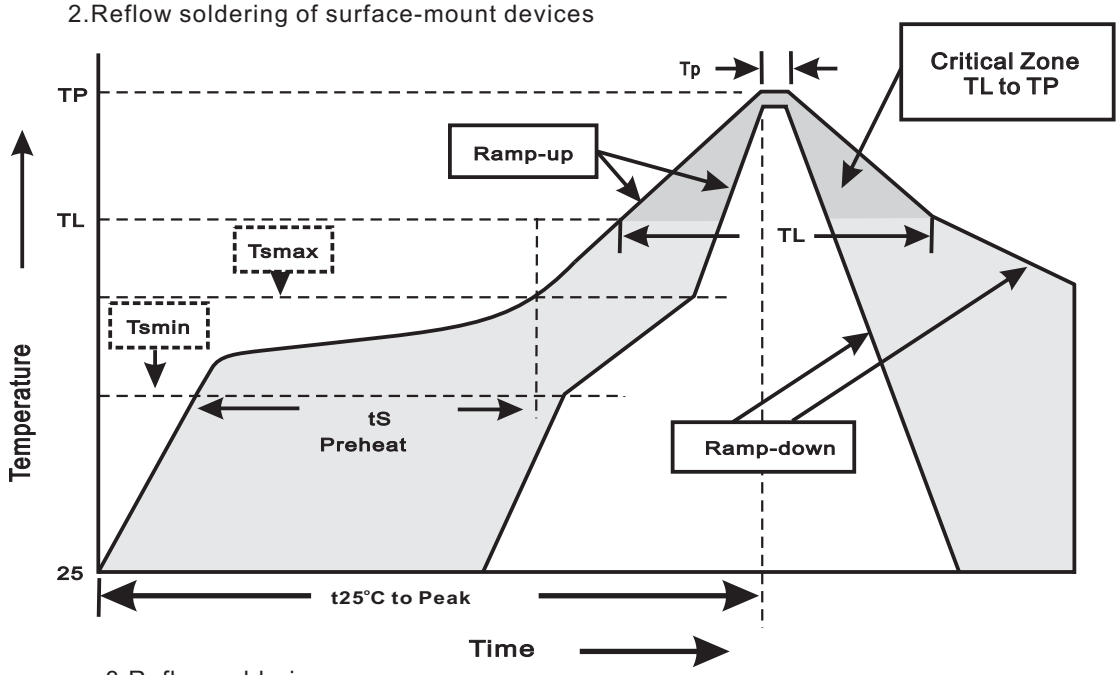


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMA	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