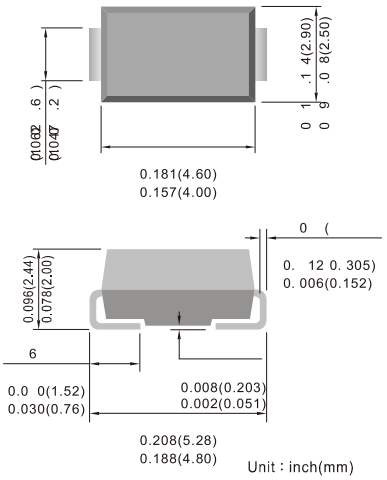
# ULTRAFAST RECTIFIER

## VOLTAGE RANGE 200 to 600 Volts CURRENT 1.0 Ampere

### DO-214AC (SMA)




### FEATURES

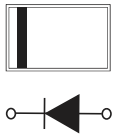
* High reliability
* Low leakage
* Low forward voltage
* High current capability
* Ultrafast switching speed
* High surge capability
* Good for switching mode circuit

### MECHANICAL DATA

* Case: Molded plastic
* Epoxy: Device has UL flammability classification 94V-O
* Lead: MIL-STD-202E method 208C guaranteed
* Mounting position: Any
* Weight: 0.057 gram

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.




**MAXIMUM RATINGS** (@ $T_A$=25 °C unless otherwise noted)

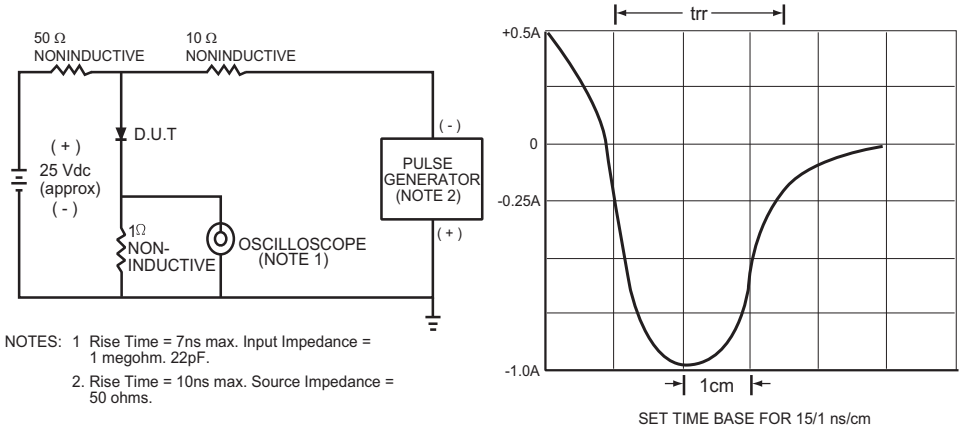
| RATINGS | SYMBOL | MURS120A | MURS140A | MURS160A | UNITS |
|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 200 | 400 | 600 | Volts |
| Maximum RMS Voltage | $V_{RMS}$ | 140 | 280 | 420 | Volts |
| Maximum DC Blocking Voltage | $V_{DC}$ | 200 | 400 | 600 | Volts |
| Maximum Average Forward Rectified Current at $T_A$=55°C | $I_O$ | 1.0 | | | Amps |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | $I_{FSM}$ | 35 | | | Amps |
| Current Squarad Time | $I^2t$ | 5.08 | | | $A^2$Sec |
| Typical Thermal Resistance (Note 1) | $R_{\theta JA}$ | 23 | | | °C/W |
| | $R_{\theta JL}$ | 13 | | | °C/W |
| Typical Junction Capacitance (Note 2) | $C_J$ | 17 | | | pF |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to + 150 | | | °C |

**ELECTRICAL CHARACTERISTICS**(@$T_A$=25 °C unless otherwise noted)

| CHARACTERISTICS | | SYMBOL | MURS120A | MURS140A | MURS160A | UNITS |
|---|---|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage at 1.0A DC | | $V_F$ | 0.875 | 1.25 | | Volts |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | @$T_A$ = 25°C | $I_R$ | 2.0 | 5.0 | | uAmps |
| | @$T_A$ = 150°C | | 50 | 150 | | |
| Maximum Reverse Recovery Time (Note 3) | | trr | 25 | 50 | | nSec |

NOTES : 1. Thermal Resistance : Mounted on PCB.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Test Conditions: $I_F$ = 0.5A, $I_R$ = -1.0A, $I_{RR}$ = -0.25A

## RATING AND CHARACTERISTICS CURVES ( MURS120A THRU MURS160A )




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

FIG.1 TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

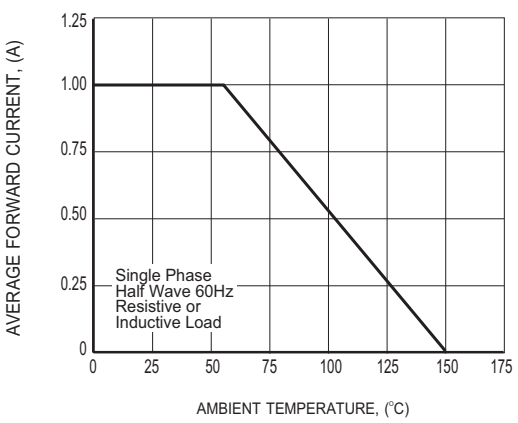



FIG.2 TYPICAL FORWARD CURRENT DERATING CURVE

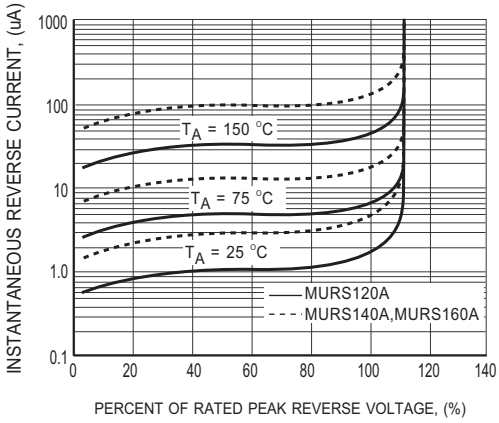



FIG.3 TYPICAL REVERSE CHARACTERISTICS

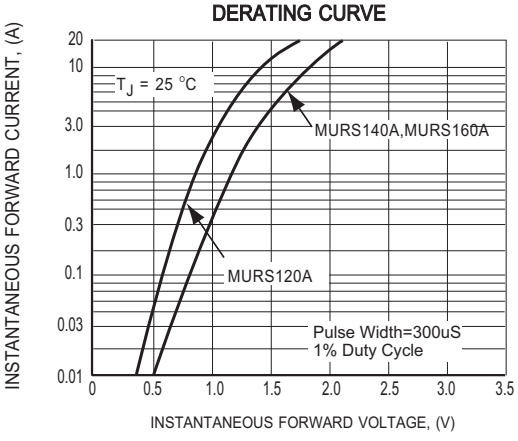



FIG.4 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

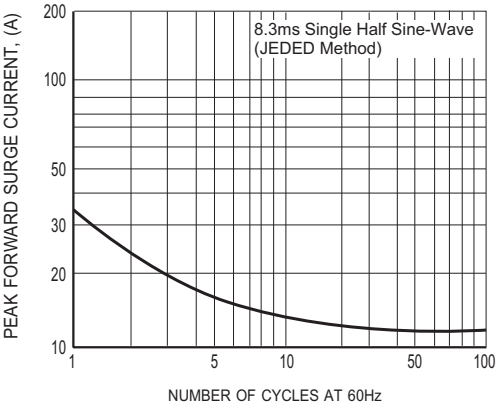



FIG.5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT