# SAMYANG ELECTRONICS

**1E1 --- 1E5**

## SUPER FAST RECTIFIERS

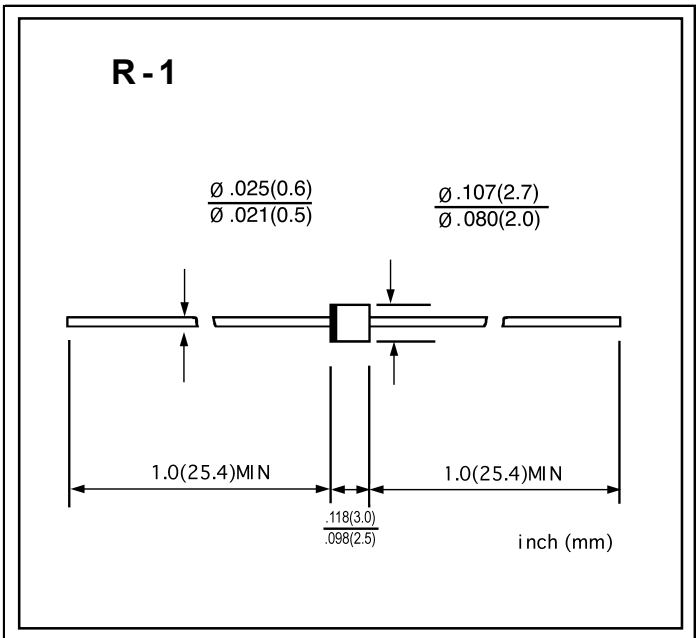
**VOLTAGE RANGE: 50 --- 600 V**
**CURRENT: 1.0 A**

### FEATURES

- ◇ Low cost
- ◇ Diffusde junction
- ◇ Ultra fast switching for high efficiency
- ◇ Low reverse leakage current
- ◇ Low forward voltage drop
- ◇ High current capability
- ◇ The plastic material carries U/L recognition 94V-0

### MECHANICAL DATA

- ◇ Case:JEDEC R--1,molded plastic
- ◇ Polarity: Color band denotes cathode
- ◇ Weight: 0.007 ounces,0.20 grams
- ◇ Mounting position: Any




### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

Single phase,half wave,60 Hz,resistive or inductive load. For capacitive load,derate by 20%.

| | | 1E1 | 1E2 | 1E2A | 1E3 | 1E3A | 1E4 | 1E5 | UNITS |
|---|---|---|---|---|---|---|---|---|---|
| Maximum recurrent peak reverse voltage | $V_{RRM}$ | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 105 | 140 | 210 | 280 | 420 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V |
| Maximum average forward rectified current 9.5mm lead length, @$T_A$=75℃ | $I_{F(AV)}$ | 1.0 | | | | | | | A |
| Peak forward surge current 8.3ms single half-sine-wave superimposed on rated load @$T_J$=125℃ | $I_{FSM}$ | 30.0 | | | | | | | A |
| Maximum instantaneous forward voltage @ 1.0A | $V_F$ | 0.95 | | | | 1.25 | | 1.7 | V |
| Maximum reverse current @$T_A$=25℃ | $I_R$ | 5.0 | | | | | | | μA |
| at rated DC blocking voltage @$T_A$=100℃ | | 150.0 | | | | | | | |
| Maximum reverse recovery time (Note1) | $t_{rr}$ | 35 | | | | | | | ns |
| Typical junction capacitance (Note2) | $C_J$ | 17 | | | | | | | pF |
| Typical thermal resistance (Note3) | $R_{JA}$ | 50 | | | | | | | ℃ |
| Operating junction temperature range | $T_J$ | - 55 ----- + 150 | | | | | | | ℃ |
| Storage temperature range | $T_{STG}$ | - 55 ----- + 150 | | | | | | | ℃ |

NOTE: 1. Measured with $I_F$=0.5A, $I_R$=1A, $I_{rr}$=0.25A.

2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

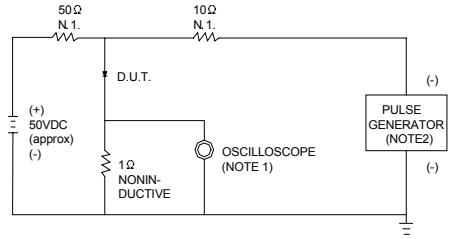
3. Thermal resistance junction to ambient

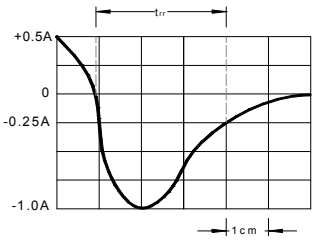
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**FIG.1 -- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**




NOTES:1.RISE TIME = 7ns MAX.INPUT IMPEDANCE = 1MΩ.22pF.
2.RISE TIME =10ns MAX.SOURCE IMPEDANCE=50 Ω.

SET TIME BASE FOR 5 ns/cm

**FIG.2 -- TYPICAL FORWARD CHARACTERISTIC**

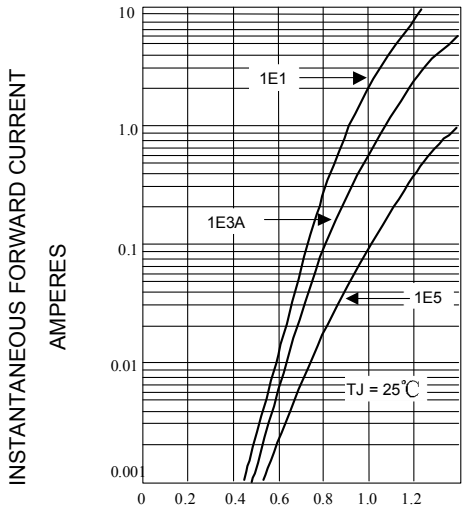



**FIG.3 -- FORWARD DERATING CURVE**

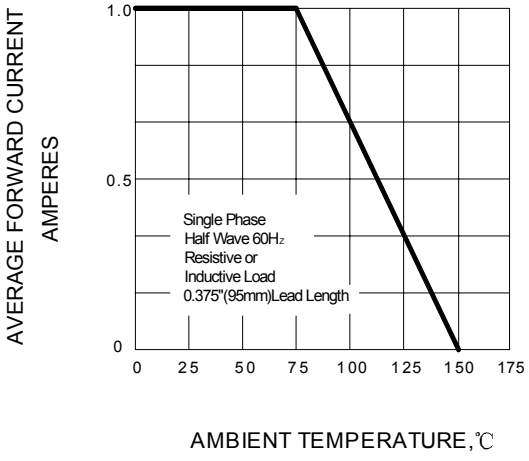



**FIG.4 -- TYPICAL JUNCTION CAPACITANCE**

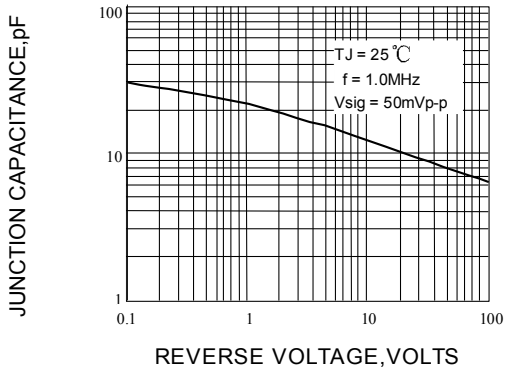
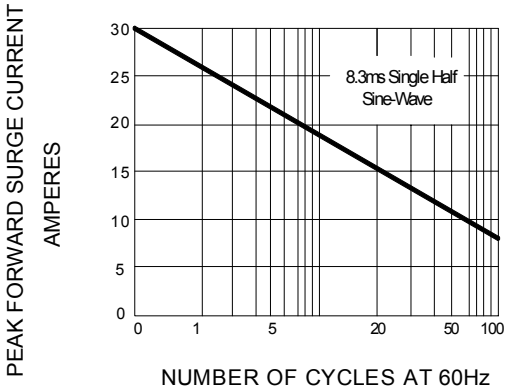



**FIG.5 -- PEAK FORWARD SURGE CURRENT**






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