

## 5 AMP SUPER-EFFICIENT RECTIFIERS

### FEATURES

- PROPRIETARY **SOFT GLASS®** JUNCTION PASSIVATION FOR SUPERIOR RELIABILITY AND PERFORMANCE
- VOID FREE VACUUM DIE SOLDERING FOR MAXIMUM MECHANICAL STRENGTH AND HEAT DISSIPATION (Solder Voids: Typical  $\leq 2\%$ , Max.  $\leq 10\%$  of Die Area)
- LOW SWITCHING NOISE
- LOW THERMAL RESISTANCE
- HIGH SWITCHING CAPABILITY
- LOW FORWARD VOLTAGE DROP

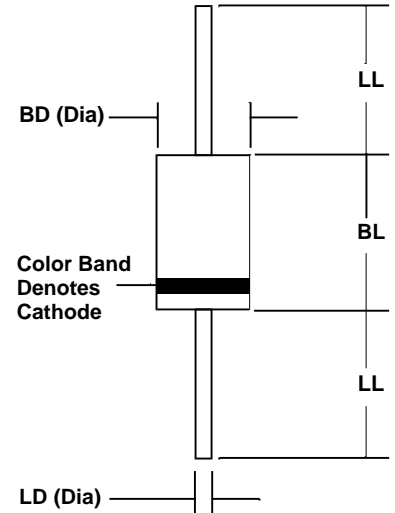
### MECHANICAL DATA

- Case: JEDEC DO-27 molded plastic (U/L Flammability Rating 94V-0)
- Terminals: Plated axial leads
- Solderability: Per MIL-STD 202 Method 208 guaranteed
- Polarity: Color band denotes cathode
- Mounting Position: Any
- Weight: 0.04 Ounces (1.12 Grams)

ACTUAL SIZE OF  
DO-27 PACKAGE

DO - 27

SERIES SPR51 - SPR54



| Sym | Minimum |      | Maximum |      |
|-----|---------|------|---------|------|
|     | In      | mm   | In      | mm   |
| BL  |         |      | 0.365   | 9.28 |
| BD  |         |      | 0.205   | 5.2  |
| LL  | 1.00    | 25.4 |         |      |
| LD  | 0.048   | 1.2  | 0.052   | 1.3  |

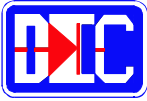
### MAXIMUM RATINGS & ELECTRICAL CHARACTERISTICS

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

| PARAMETER (TEST CONDITIONS)   | SYMBOL                            | RATINGS     |       |       |       | UNITS |
|---|-----------------------------------|-------------|-------|-------|-------|-------|
| Series Number   |                                   | SPR51       | SPR52 | SPR53 | SPR54 |       |
| Maximum DC Blocking Voltage   | V <sub>RM</sub>                   | 100         | 200   | 300   | 400   | VOLTS |
| Maximum RMS Voltage   | V <sub>RMS</sub>                  | 70          | 140   | 210   | 280   |       |
| Maximum Peak Recurrent Reverse Voltage  | V <sub>RRM</sub>                  | 100         | 200   | 300   | 400   |       |
| Average Forward Rectified Current @ T <sub>A</sub> = 55 °C  | I <sub>O</sub>                    | 5           |       |       |       | AMPS  |
| Peak Forward Surge Current ( 8.3mS single half sine wave superimposed on rated load)                                  | I <sub>FSM</sub>                  | 150         |       |       |       |       |
| Maximum Forward Voltage at 5 Amps DC  | V <sub>FM</sub>                   | 1.25        |       |       |       | VOLTS |
| Maximum Average DC Reverse Current @ T <sub>C</sub> = 25 °C<br>At Rated DC Blocking Voltage @ T <sub>C</sub> = 100 °C | I <sub>RM</sub>                   | 5<br>50     |       |       |       | μA    |
| Typical Thermal Resistance, Junction to Ambient   | R <sub>θJA</sub>                  | 20          |       |       |       | °C/W  |
| Typical Junction Capacitance (Note 1)   | C <sub>J</sub>                    | 75          |       |       |       | pF    |
| Maximum Reverse Recovery Time (I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A)                      | T <sub>RR</sub>                   | 50          |       |       |       | nSec  |
| Junction Operating and Storage Temperature Range  | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 |       |       |       | °C    |

NOTES: (1) Measured at 1 MHz and an applied reverse voltage of 4 volts.

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### RATING & CHARACTERISTIC CURVES FOR SERIES SPR51 - SPR54

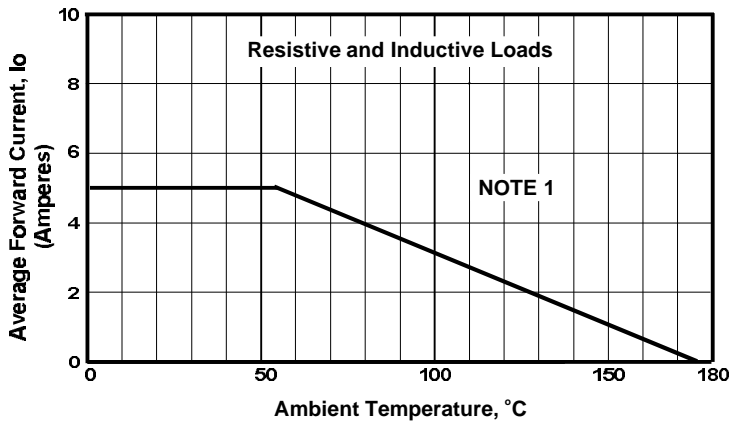


FIGURE 1. FORWARD CURRENT DERATING CURVE

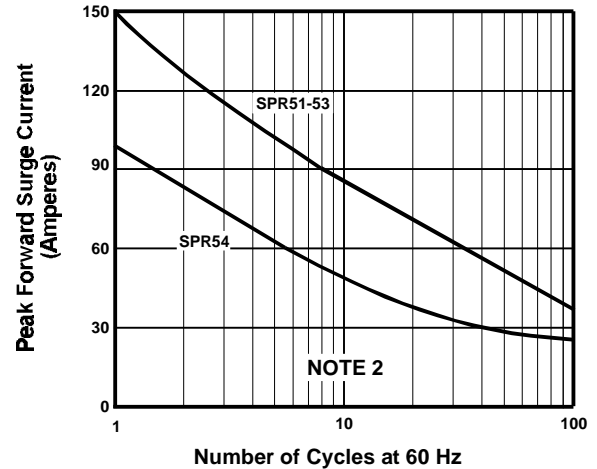


FIGURE 2. MAXIMUM NON-REPETITIVE SURGE CURRENT

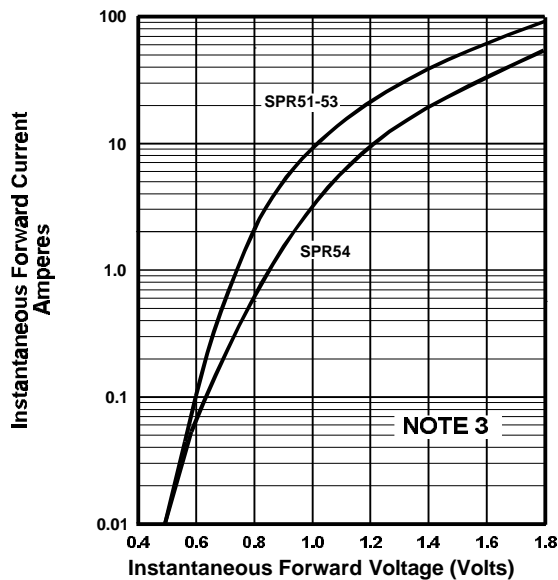


FIGURE 3. TYPICAL FORWARD CHARACTERISTICS

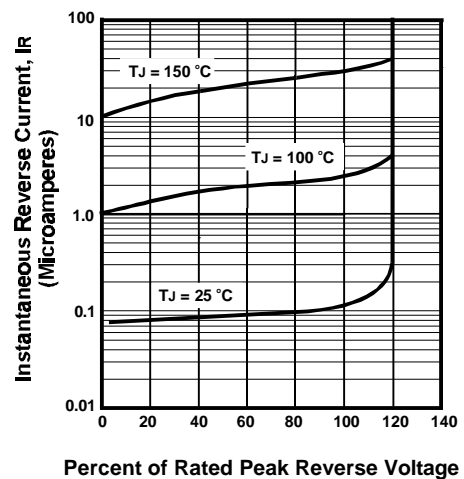


FIGURE 4. TYPICAL REVERSE CHARACTERISTICS

#### NOTES

- (1) Single Phase, Half Wave, 60 Hz; Lead Length = 0.375" (9.5mm)
- (2) JEDEC Method, 8.3 mSec. Single Half Sine Wave;  $T_L = 55\text{ }^{\circ}\text{C}$
- (3)  $T_J = 25\text{ }^{\circ}\text{C}$ , Pulse Width = 300  $\mu\text{Sec}$ , 1.0% Duty Cycle
- (4)  $T_J = 25\text{ }^{\circ}\text{C}$ ,  $f = 1\text{ MHz}$ ,  $V_{SIG} = 50\text{ mV P-P}$

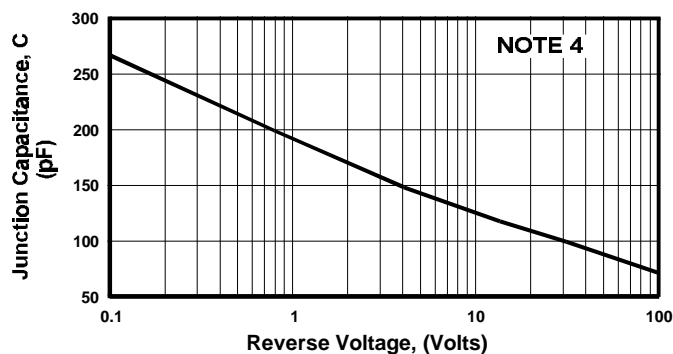


FIGURE 5. TYPICAL JUNCTION CAPACITANCE