

## 15 AMP SUPER-EFFICIENT RECTIFIERS

### FEATURES

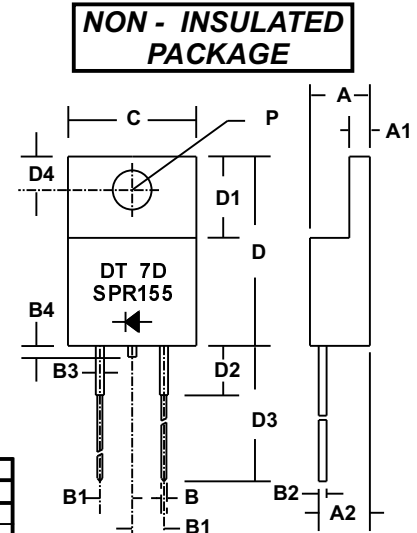
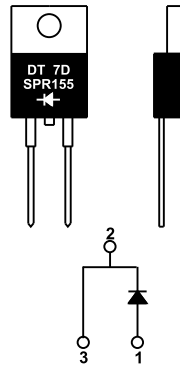
- Glass Passivated for high reliability/temperature performance
- Low switching noise
- Low forward voltage drop
- Low thermal resistance
- High switching capability
- High surge capability

### MECHANICAL DATA

- Case: TO-220 molded epoxy (U/L Flammability Rating 94V-0)
- Terminals: Rectangular pins w/ standoff
- Solderability: Per MIL-STD 202 Method 208 guaranteed
- Polarity: Diode depicted on product
- Mounting Position: Any
- Weight: 0.08 Ounces (2.2 Grams)

### MECHANICAL SPECIFICATION

ACTUAL SIZE OF TO-220AC PACKAGE



TO - 220AC  
 SERIES SPR150 - SPR156

| Sym | Minimum |       | Maximum |      |
|-----|---------|-------|---------|------|
|     | in      | mm    | in      | mm   |
| A   |         |       | 0.187   | 4.75 |
| A1  | 0.121*  | 4.75* |         |      |
| A2  | 0.14*   | 3.56* |         |      |
| B   | 0.035   | 0.9   | 0.043   | 1.1  |
| B1  | 0.09    | 2.3   | 0.102   | 2.6  |
| B2  | 0.025*  | 0.64* |         |      |
| B3  | 0.050*  | 1.27* |         |      |
| B4  |         |       | 0.04    | 1.0  |
| C   |         |       | 0.413   | 10.5 |
| D   | 0.59    | 15.0  | 0.61    | 15.5 |
| D1  | 0.262*  | 6.6*  |         |      |
| D2  |         |       | 0.16    | 4.0  |
| D3  | 0.54    | 13.7  | 0.60    | 15.2 |
| D4  | 0.108*  | 2.75* |         |      |
| P   | 0.126*  | 3.2*  |         |      |

\* These dimensions are "Typicals".

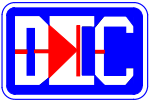
### MAXIMUM RATINGS & ELECTRICAL CHARACTERISTICS

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 |
|---|-----------------------------------|-------------|---------|---------|---------|---------|---------|---------|-------|-------|
|   |                                   | SPR 150     | SPR 151 | SPR 152 | SPR 153 | SPR 154 | SPR 155 | SPR 156 |       |       |
| Series Number   |                                   |             |         |         |         |         |         |         |       |       |
| Maximum DC Blocking Voltage   | V <sub>RM</sub>                   | 50          | 100     | 200     | 300     | 400     | 500     | 600     |       | VOLTS |
| Maximum RMS Voltage   | V <sub>RMS</sub>                  | 35          | 70      | 140     | 210     | 280     | 350     | 420     |       |       |
| Maximum Peak Recurrent Reverse Voltage  | V <sub>RRM</sub>                  | 50          | 100     | 200     | 300     | 400     | 500     | 600     |       |       |
| Average Forward Rectified Current @ T <sub>c</sub> = 110 °C   | I <sub>O</sub>                    | 15          |         |         |         |         |         |         |       | AMPS  |
| Peak Forward Surge Current ( 8.3mS single half sine wave superimposed on rated load)                                  | I <sub>FSM</sub>                  | 250         |         |         |         |         |         |         |       |       |
| Maximum Forward Voltage at 15 Amps DC   | V <sub>FM</sub>                   | 0.95        |         | 1.25    |         | 1.5     |         |         | 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>                   | 10          |         |         |         | 500     |         |         |       | μA    |
| Typical Thermal Resistance, Junction to Case  | R <sub>θJC</sub>                  | 1.5         |         |         |         |         |         |         |       | °C/W  |
| Typical Junction Capacitance (Note 1)   | C <sub>J</sub>                    | 65          |         |         |         |         |         |         |       | pF    |
| Maximum Reverse Recovery Time (I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>RR</sub> =0.25A)                    | T <sub>RR</sub>                   | 35          |         |         |         | 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.

4.97155a15



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## RATING & CHARACTERISTIC CURVES FOR SERIES SPR150 - SPR156

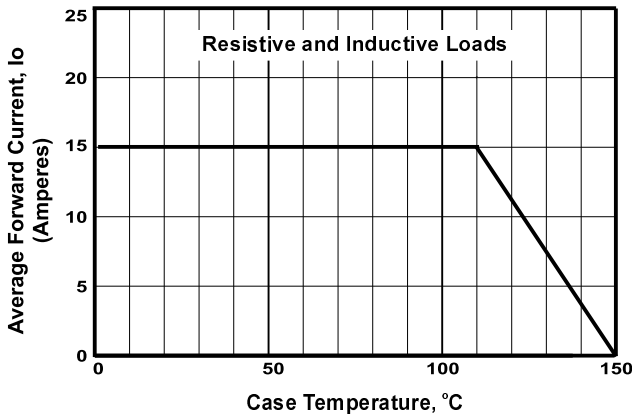


FIGURE 1. FORWARD CURRENT DERATING CURVE

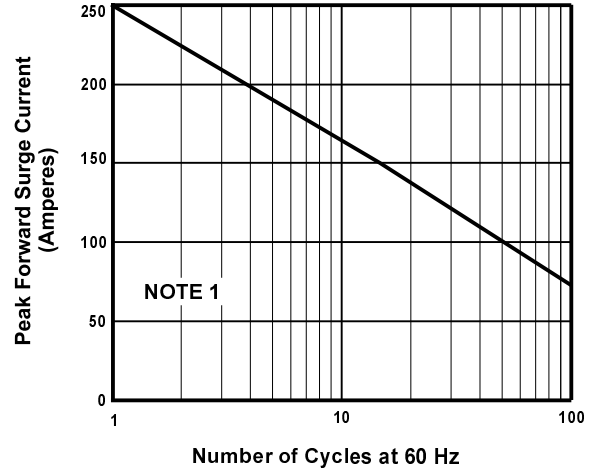


FIGURE 2. MAXIMUM NON-REPETITIVE SURGE CURRENT

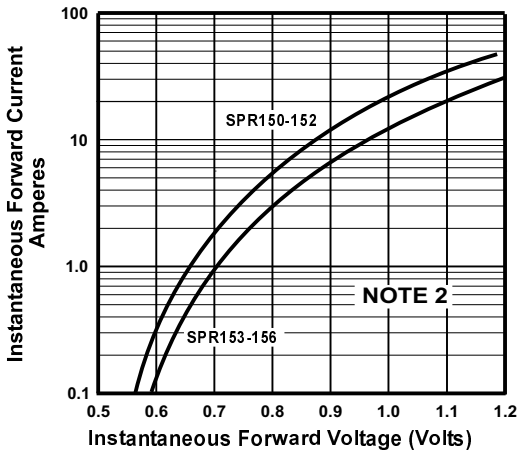


FIGURE 3. TYPICAL FORWARD CHARACTERISTICS

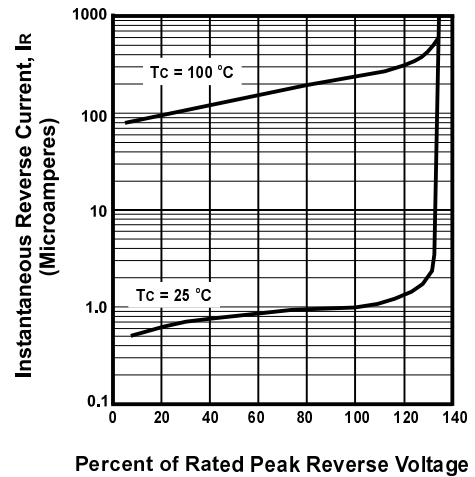


FIGURE 4. TYPICAL REVERSE CHARACTERISTICS

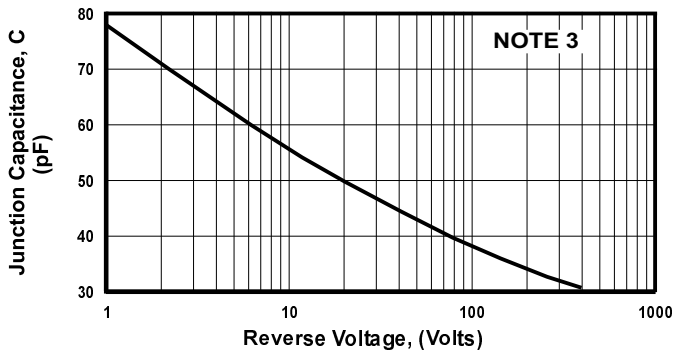


FIGURE 5. TYPICAL JUNCTION CAPACITANCE

### NOTES

- (1) JEDEC Method, 8.3 mSec. Single Half Sine Wave
- (2)  $T_J = 25^\circ\text{C}$ , Pulse Width = 300  $\mu\text{Sec}$ , 1.0% Duty Cycle
- (3)  $T_C = 25^\circ\text{C}$ ,  $f = 1\text{ MHz}$ ,  $V_{SIG} = 50\text{ mV P-P}$