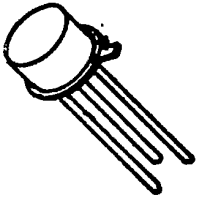


5R0/52 THRU 15R0/52 1 AMP EPION II HIGH SPEED RECTIFIER 50-150 VOLTS



14830 Valley View Avenue
La Mirada, California 90638
(213) 921-9660
TWX 910-583-4807
FAX 213-921-2396

CASE STYLE L JEDED TO-52



FEATURES

- RADIATION TOLERANT
- ULTRA FAST RECOVERY 9 NSEC MAX
- REVERSE VOLTAGE TO 150 VOLTS
- LOW FORWARD VOLTAGE DROP 450 MV AVERAGE
- LOW REVERSE LEAKAGE
- HERMETICALLY SEALED
- SINGLE CHIP CONSTRUCTION
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH, ULTRASONIC ALUMINUM WIRE BONDS

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|-------------------------|-------------|-------|
| Peak Repetitive Reverse Voltage and DC Blocking Voltage | V_{RM} (rep) V_R | | Volts |
| 5R0/52 | | 50 | |
| 7R0/52 | | 70 | |
| 10R0/52 | | 100 | |
| 12R0/52 | | 125 | |
| 15R0/52 | | 150 | |
| RMS Reverse Voltage | V_r | | Volts |
| 5R0/52 | | 35 | |
| 7R0/52 | | 50 | |
| 10R0/52 | | 70 | |
| 12R0/52 | | 90 | |
| 15R0/52 | | 110 | |
| Half Wave Rectified Forward Current, Averaged Over Full Cycle (Resistive Load, 60Hz, Sine Wave, $T_C = 55^\circ\text{C}$) | I_0 | 1 | Amps |
| Peak Repetitive Forward Current ($T_C = 55^\circ\text{C}$, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses) | I_{FM} (rep) | 10 | Amps |
| Peak Surge Current ($T_C = 55^\circ\text{C}$, Superimposed on Rated Current at Rated Voltage, 8.3 ms Pulse) | I_{FM} (surge) | 50 | Amps |
| Operating and Storage Temperature | T_J, T_{stg} | -65 to +200 | °C |

THERMAL CHARACTERISTICS

| Characteristics | Symbol | Max | Unit |
|--------------------------------------|-----------------|-----|------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 50 | °C/W |

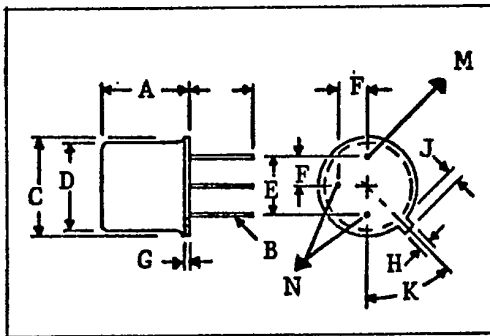
ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|--|-------------|-------|------------------|
| Max Full Cycle Forward Voltage Drop, Averaged Over Full Cycle, (I_D (Max), 60 Hz, Square Wave, $T_C = 55^\circ\text{C}$) | $V_{F(AV)}$ | .45 | Vdc |
| Max Instantaneous Forward Drop ($I_F = 1$ Adc, $T_C = 25^\circ\text{C}$, 300 μs Pulse) | V_F | .9 | Vdc |
| Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle, (Rated V_R , 60Hz, Square Wave, $T_C = 100^\circ\text{C}$) | $I_{R(AV)}$ | 100 | μA dc |
| Max Reverse Leakage Current (Rated V_R , $T_C = 25^\circ\text{C}$) | I_R | 10 | μA dc |
| Max Junction Capacitance ($V_R = 10$ V, $T_C = 25^\circ\text{C}$) | C_J | 15 | pf |

REVERSE RECOVERY CHARACTERISTICS

| Characteristics | Symbol | Min | Typ | Max | Unit |
|---|----------|-----|-----|-----|------|
| Reverse Recovery Time ($I_F = 500\text{ma}$, $I_R = 1\text{A}$, $I_{RR} = 250\text{ma}$) | t_{rr} | -- | 6 | 9 | ns |

PHYSICAL DIMENSIONS

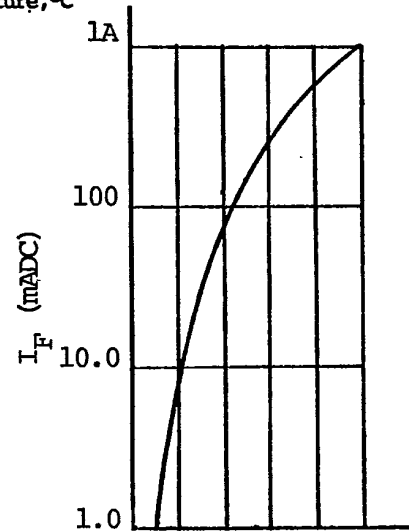
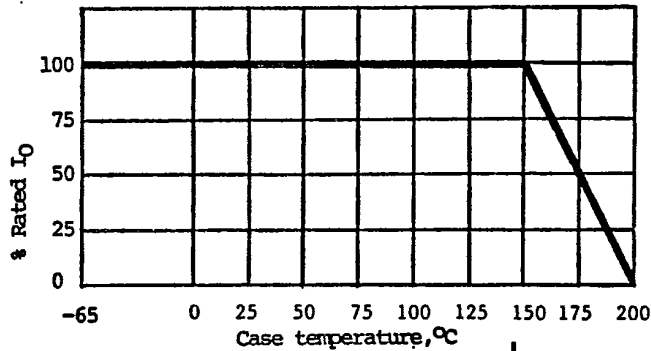


KEY TO DIMENSIONS:

(Inches)

- A = .115 - .150
- B = .016 - .021
- C = .209 - .230
- D = .178 - .195
- E = .100 T.P.
- F = .050 T.P.
- G = .030 MAX.
- H = .036 - .046
- J = .028 - .048
- K = 45° T.P.
- M = CATHODE
- N = ANODE


TYPICAL OPERATING CURVES



.4 .5 .6 .7 .8 .9

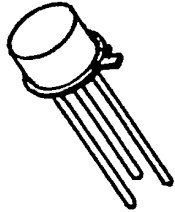
V_F (VDC)



| | |
|--|--|
| <p>5R1/52 THRU 15R1/52</p> <p>3 AMP</p> <p>EPION II HIGH SPEED RECTIFIER</p> <p>50-150 VOLTS</p> | <p>T-03-15</p>  <p>14830 Valley View Avenue La Mirada, California 90638 P. O. Box 577 La Mirada, California 90637 (213) 921-9660 TWX 910-583-4807</p> |
|--|--|

CASE STYLE L

JEDEC TO-52



FEATURES

- RADIATION TOLERANT
- ULTRA FAST RECOVERY 15 NSEC MAX
- REVERSE VOLTAGE TO 150 VOLTS
- LOW FORWARD VOLTAGE DROP 450 MV AVERAGE
- LOW REVERSE LEAKAGE
- HERMETICALLY SEALED
- SINGLE CHIP CONSTRUCTION
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH, ULTRASONIC ALUMINUM WIRE BONDS

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit | |
|---|-----------------------------|-------------------------------|-------|---------|
| Peak Repetitive Reverse Voltage and DC Blocking Voltage | $V_{RM} (rep)$ V_R | 50 70 100 125 150 | Volts | |
| | | | | 5R1/52 |
| | | | | 7R1/52 |
| | | | | 10R1/52 |
| | | | | 12R1/52 |
| | | | | 15R1/52 |
| RMS Reverse Voltage | V_r | 35 50 70 90 110 | Volts | |
| | | | | 5R1/52 |
| | | | | 7R1/52 |
| | | | | 10R1/52 |
| | | | | 12R1/52 |
| | | | | 15R1/52 |
| Half Wave Rectified Forward Current, Averaged Over Full Cycle (Resistive Load, 60Hz, Sine Wave, $T_C = 55^\circ C$) | I_0 | 3 | Amps | |
| Peak Repetitive Forward Current ($T_C = 55^\circ C$, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses) | $I_{FM} (rep)$ | 10 | Amps | |
| Peak Surge Current ($T_C = 55^\circ C$, Superimposed on Rated Current at Rated Voltage, 8.3 ms Pulse) | $I_{FM} (surge)$ | 50 | Amps | |
| Operating and Storage Temperature | T_J, T_{stg} | -65 to +200 | °C | |

THERMAL CHARACTERISTICS

| Characteristics | Symbol | Max | Unit |
|--------------------------------------|-----------------|-----|------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 16 | °C/W |

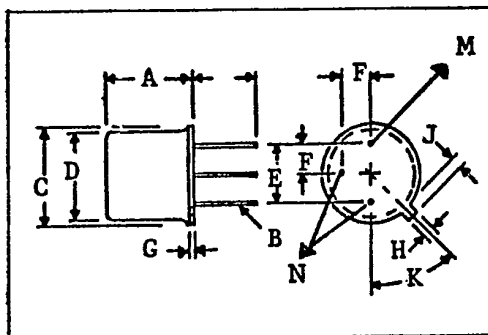
ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|--|-------------|-------|------------------|
| Max Full Cycle Forward Voltage Drop, Averaged Over Full Cycle. (I_O (Max), 60.Hz Square Wave, $T_C = 55^\circ\text{C}$) | $V_{F(AV)}$ | .45 | Vdc |
| Max Instantaneous Forward Drop ($I_F = 3$ Adc, $T_C = 25^\circ\text{C}$, 300 μs Pulse) | V_F | .9 | Vdc |
| Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle. (Rated V_R , 60Hz, Square Wave, $T_C = 100^\circ\text{C}$) | $I_{R(AV)}$ | 200 | μA dc |
| Max Reverse Leakage Current (Rated V_R , $T_C = 25^\circ\text{C}$) | I_R | 20 | μA dc |
| Max Junction Capacitance ($V_R = 10$ V, $T_C = 25^\circ\text{C}$) | C_J | 35 | pf |

REVERSE RECOVERY CHARACTERISTICS

| Characteristics | Symbol | Min | Typ | Max | Unit |
|---|----------|-----|-----|-----|------|
| Reverse Recovery Time ($I_F = 500\text{ma}$, $I_R = 1\text{A}$, $I_{RR} = 250\text{ma}$) | t_{rr} | -- | 10 | 15 | ns |

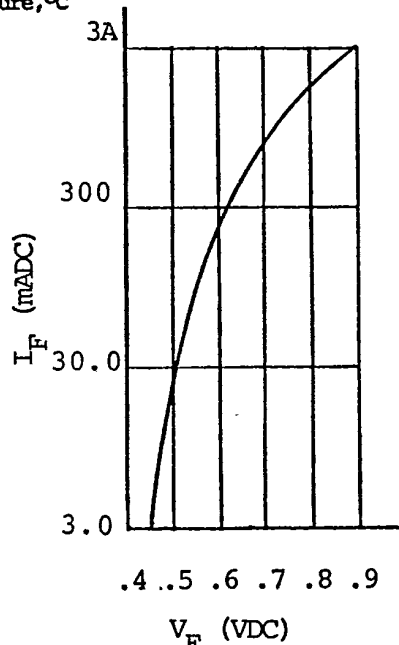
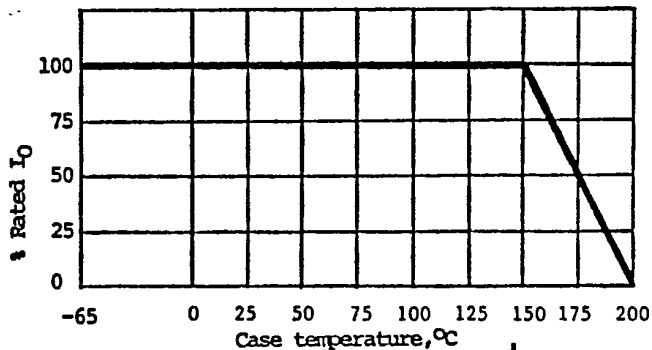
PHYSICAL DIMENSIONS



KEY TO DIMENSIONS:

- (Inches)
- A = .115 - .150
 - B = .016 - .021
 - C = .209 - .230
 - D = .178 - .195
 - E = .100 T.P.
 - F = .050 T.P.
 - G = .030 MAX
 - H = .036 - .046
 - J = .028 - .048
 - K = 45° T.P.
 - M = CATHODE
 - N = ANODE

TYPICAL OPERATING CURVES





14830 Valley View Avenue
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HSR-3B

T-03-17

8 AMP EPION™ HIGH SPEED RECTIFIER

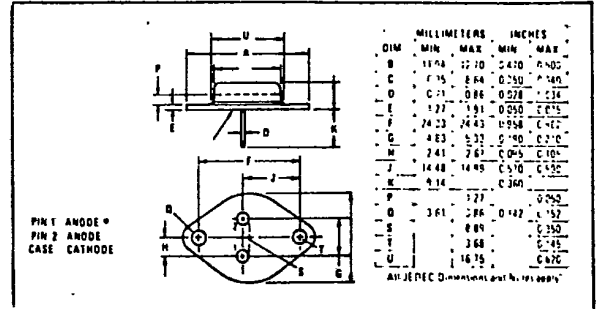
Epion is an exclusive SSDI ion implantation process

FEATURES

- LOW FORWARD VOLTAGE DROP 450 MV AVERAGE
- ULTRA FAST REVERSE RECOVERY 20 NSEC MAX.
- LOW REVERSE LEAKAGE
- EXCEPTIONAL EFFICIENCY
- HIGH SURGE CURRENT
- HERMETICALLY SEALED
- RADIATION HARDENED

PHYSICAL DIMENSIONS

In accordance with JEDEC (TO 66) outline



MAXIMUM RATINGS

*Parallel Anode available – Special order HSR-3BD

| Rating | Symbol | Value | Unit |
|---|------------------|-------------|------------|
| Peak Repetitive Reverse Voltage and DC Blocking Voltage | $V_{RM (rep)}$ | | Volts |
| | V_R | | |
| | 2R3B | 20 | |
| | 3R3B | 30 | |
| | 4R3B | 40 | |
| | 5R3B | 50 | |
| | 7R3B | 70 | |
| | 10R3B | 100 | |
| 12R3B | 125 | | |
| 15R3B | 150 | | |
| RMS Reverse Voltage | V_r | | Volts |
| | 2R3B | 15 | |
| | 3R3B | 20 | |
| | 4R3B | 30 | |
| | 5R3B | 35 | |
| | 7R3B | 50 | |
| | 10R3B | 70 | |
| | 12R3B | 90 | |
| 15R3B | 110 | | |
| Average 1/2-Wave Rectified Forward Current (Resistive Load, 60 Hz, $T_C = 55^\circ C$) | I_O | 8 | Amp |
| Peak Repetitive Forward Current ($T_C = 100^\circ C$) | $I_{FM (rep)}$ | 32 | Amp |
| Peak Surge Current ($T_C = 100^\circ C$, Superimposed on Rated Current at Rated Voltage) | $I_{FM (surge)}$ | | Amp |
| Operating Temperature | T_{Jr} | -65 to +175 | $^\circ C$ |
| Storage Temperature | T_{stg} | -65 to +200 | $^\circ C$ |

THERMAL CHARACTERISTICS

| Characteristics | Symbol | Max | Unit |
|--------------------------------------|-----------------|-----|---------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 2.0 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|--|-------------|-------|---------|
| Max Full Cycle Average Forward Voltage Drop, 1/2 Wave (I_O (Max), rated V_r , 60 Hz, $T_C = 55^{\circ}C$) | $V_{F(AV)}$ | .45 | Volts |
| Max Instantaneous Forward Voltage Drop ($I_F = 8$ Amps, $T_J = 25^{\circ}C$) | V_F | .9 | Volts |
| Max Full Cycle Average Reverse Current (I_O (Max), rated V_r , 60 Hz, $T_C = 100^{\circ}C$) | $I_{R(AV)}$ | 1.0 | mA |
| Max DC Reverse Current (Rated V_R , $T_C = 25^{\circ}C$) | I_R | 100 | μa |

REVERSE RECOVERY CHARACTERISTICS

| Characteristics | Symbol | Min | Typ | Max | Unit |
|---|----------|-----|-----|-----|------|
| Reverse Recovery Time ($I_F = .5$ Amp to 1 Amp, .1 Amp) | t_{rr} | - | 15 | 20 | ns |

TYPICAL OPERATING CURVES

