

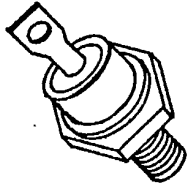
5R5S THRU 15R5S
30 AMP
EPION II HIGH SPEED RECTIFIER
50-150 VOLTS

T-03-19



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

CASE STYLE J
JEDEC DO-5



FEATURES

- RADIATION TOLERANT
- ULTRA FAST RECOVERY 50 NSEC MAX
- REVERSE VOLTAGE TO 150 VOLTS
- VERY LOW FORWARD VOLTAGE DROP 450 MV AVERAGE
- LOW REVERSE LEAKAGE
- HERMETICALLY SEALED
- SINGLE CHIP CONSTRUCTION
- 200°C OPERATING

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage and DC Blocking Voltage	5R5S	$V_{RM} (rep)$		Volts
	7R5S	V_R	50	
	10R5S		70	
	12R5S		100	
	15R5S		125	
RMS Reverse Voltage	5R5S	V_r	35	Volts
	7R5S		50	
	10R5S		70	
	12R5S		90	
	15R5S		110	
Half Wave Rectified Forward Current, Averaged Over Full Cycle (Resistive Load, 60Hz, Sine Wave, $T_C = 55^\circ C$)		I_0	30	Amps
Peak Repetitive Forward Current ($T_C = 55^\circ C$, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses)		$I_{FM} (rep)$	90	Amps
Peak Surge Current ($T_C = 55^\circ C$, Superimposed on Rated Current at Rated Voltage, 8.3 ms Pulse)		$I_{FM} (surge)$	275	Amps
Operating and Storage Temperature		T_J, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	°C/W

ELECTRICAL CHARACTERISTICS

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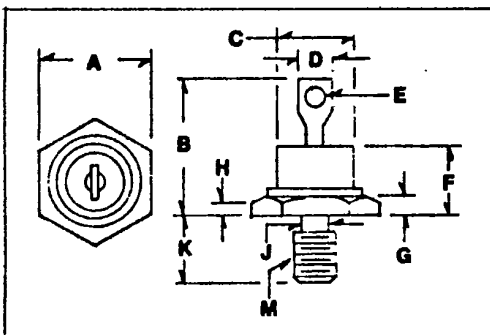
Characteristics	Symbol	Value	Unit
Max Full Cycle Forward Voltage Drop, Averaged Over Full Cycle (I_O (Max), 60 Hz Square Wave, $T_C = 55^\circ\text{C}$)	$V_{F(AV)}$.45	Vdc
Max Instantaneous Forward Drop ($I_F = 30$ Adc, $T_C = 25^\circ\text{C}$, 300 μs Pulse)	V_F	.9	Vdc
Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle (Rated V_R , 60Hz Square Wave, $T_C = 100^\circ\text{C}$)	$I_{R(AV)}$	2.5*	mA
Max Reverse Leakage Current (Rated V_R , $T_C = 25^\circ\text{C}$)	I_R	250*	μA dc
Max Junction Capacitance ($V_R = 10$ V, $T_C = 25^\circ\text{C}$)	C_J	250	pf

REVERSE RECOVERY CHARACTERISTICS

*LOWER LEAKAGE DEVICES AVAILABLE FROM FACTORY

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}	---	40	50	ns

PHYSICAL DIMENSIONS

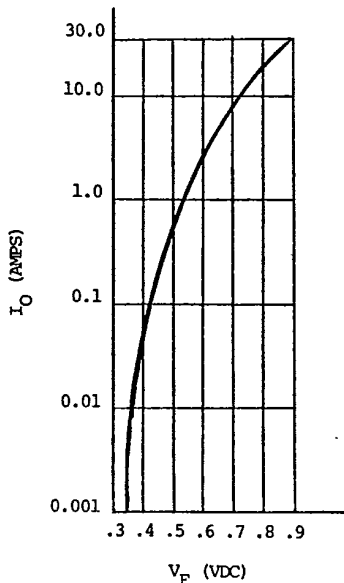
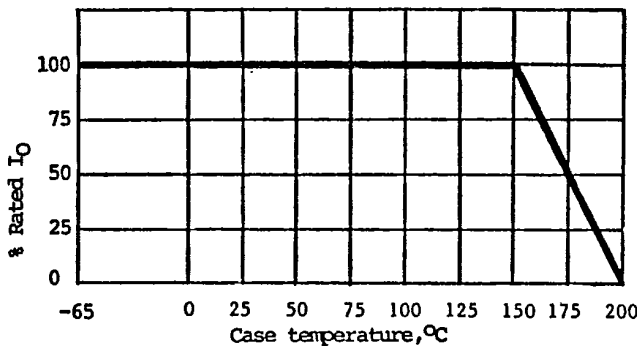


KEY TO DIMENSIONS:

(Inches)

- A = .667 TO .687
- B = 1.000 MAX.
- C = .667 MAX.
- D = .375 MAX.
- E = .140 TO .175
- F = .450 MAX.
- G = .115 TO .200
- H = .060 MIN.
- J = .220 TO .249
- K = .422 TO .453
- M = $\frac{1}{4}$ -28 UNF-2A

TYPICAL OPERATING CURVES



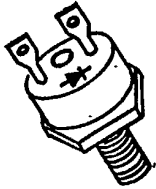
5R5/61 THRU 15R5/61
30 AMP
EPION II HIGH SPEED RECTIFIER
50-150 VOLTS

MILITARY GRADE REPLACEMENT FOR COMMERCIAL DO-5



14830 Valley View Avenue
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CASE STYLE T
2 PIN TO-61



FEATURES

- ISOLATED PACKAGE/RADIATION TOLERANT
- ULTRA FAST RECOVERY 50 NSEC MAX
- REVERSE VOLTAGE TO 150V
- LOW FORWARD VOLTAGE DROP 500 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	5R5/61	V_{RM} (rep)	50	Volts
	7R5/61	V_R	70	
	10R5/61		100	
	12R5/61		125	
	15R5/61		150	
RMS Reverse Voltage	5R5/61	V_r	35	Volts
	7R5/61		50	
	10R5/61		70	
	12R5/61		90	
	15R5/61		110	
Half Wave Rectified Forward Current, Averaged Over Full Cycle (Resistive Load, 60Hz, Sine Wave, $T_C = 55^\circ\text{C}$)		I_o	30	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)	90	Amps
Peak Surge Current ($T_C = 55^\circ\text{C}$, Superimposed on Rated Current at Rated Voltage, 8.3 ms Pulse)		I_{FM} (surge)	275	Amps
Operating and Storage Temperature		T_J, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	°C/W

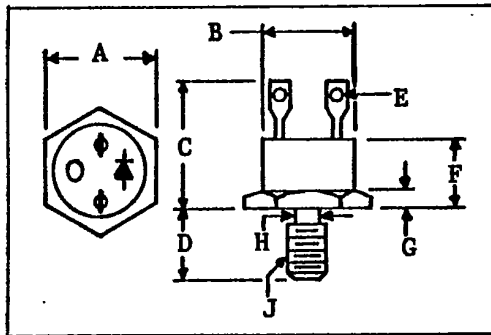
ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Max Full Cycle Forward Voltage Drop, Averaged Over Full Cycle. (I_O (Max), 60 Hz. Square Wave, $T_C = 55^\circ\text{C}$)	$V_F(AV)$.5	Vdc
Max Instantaneous Forward Drop ($I_F = 30$ Adc, $T_C = 25^\circ\text{C}$, 300 μs Pulse)	V_F	1.0	Vdc
Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle. (Rated V_R , 60Hz. Square Wave, $T_C = 100^\circ\text{C}$)	$I_R(AV)$	2.5*	mA
Max Reverse Leakage Current (Rated V_R , $T_C = 25^\circ\text{C}$)	I_R	250*	μA
Max Junction Capacitance ($V_R = 1.0$ V, $T_C = 25^\circ\text{C}$)	C_J	250	pf

REVERSE RECOVERY CHARACTERISTICS *LOWER LEAKAGE DEVICES AVAILABLE FROM FACTORY

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}	--	40	50	ns

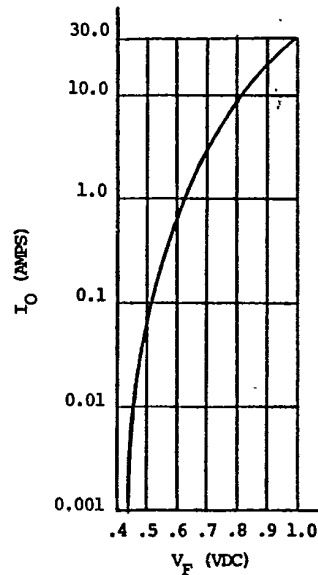
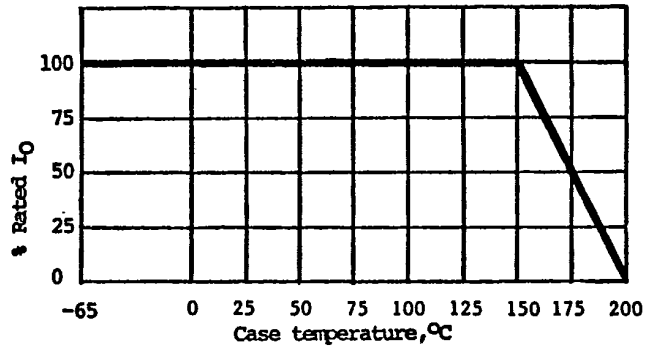
PHYSICAL DIMENSIONS



KEY TO DIMENSIONS:

- (Inches)
- A = .667 - .687
 - B = .570 - .610
 - C = .640 - .875
 - D = .422 - .455
 - E = .047 - .072 (Diameter)
 - F = .325 - .460
 - G = .090 - .150
 - H = .220 - .249 (Diameter)
 - J = $\frac{1}{4}$ - 28 UNF-2A

TYPICAL OPERATING CURVES



5R5/3D THRU 15R5/3D

30 AMP

EPION II HIGH SPEED RECTIFIER

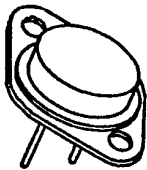
50-150 VOLTS



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CASE STYLE R

TO-3 WITH .060 PINS



FEATURES

- RADIATION TOLERANT
- ULTRA FAST RECOVERY 50 NSEC MAX
- REVERSE VOLTAGE UP 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	5R5/3D	$V_{RM} (rep)$	50	Volts
	7R5/3D	V_R		
	10R5/3D			
	12R5/3D			
	15R5/3D			
RMS Reverse Voltage	5R5/3D	V_r	35	Volts
	7R5/3D		50	
	10R5/3D		70	
	12R5/3D		90	
	15R5/3D		110	
Half Wave Rectified Forward Current, Averaged Over Full Cycle (Resistive Load, 60Hz, Sine Wave, $T_C = 55^\circ C$)		I_0	30	Amps
Peak Repetitive Forward Current ($T_C = 55^\circ C$, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses)		$I_{FM} (rep)$	110	Amps
Peak Surge Current ($T_C = 55^\circ C$, Superimposed on Rated Current at Rated Voltage, 8.3 ms Pulse)		$I_{FM} (surge)$	350	Amps
Operating and Storage Temperature		T_J, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	°C/W

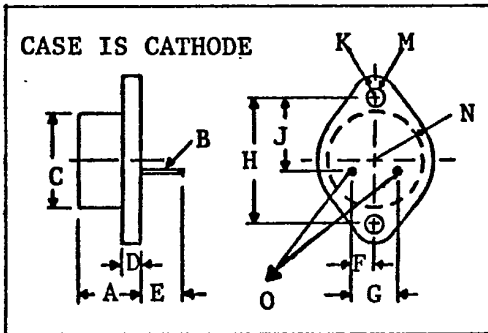
ELECTRICAL CHARACTERISTICS

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 ($I_F = 30$ 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, $T_C = 100^\circ\text{C}$)	$I_{R(AV)}$	2.5 *	mA
Max Reverse Leakage Current (Rated V_R , $T_C = 25^\circ\text{C}$)	I_R	250 *	μAdc
Max Junction Capacitance ($V_R = 10$ V, $T_C = 25^\circ\text{C}$)	C_J	250	pf

REVERSE RECOVERY CHARACTERISTICS *LOWER LEAKAGE DEVICES AVAILABLE FROM FACTORY

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}	--	40	50	ns

PHYSICAL DIMENSIONS



KEY TO DIMENSIONS:

- (Inches)
- A = .250 - .450
 - B = .057 - .062
 - C = .875 MAX.
 - D = .135 MAX.
 - E = .312 MIN.
 - F = .205 - .225
 - G = .420 - .440
 - H = 1.177 - 1.197
 - J = .655 - .675
 - K = .188 MAX.
 - M = .151 - .161
 - N = .525 MAX.
 - O = ANODE

TYPICAL OPERATING CURVES

