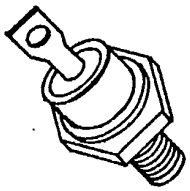
T-03-19

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

SSDI
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		$V_{RM\ (rep)}$ / V_R		Volts
	5R5S		50	
	7R5S		70	
	10R5S		100	
	12R5S		125	
	15R5S		150	
RMS Reverse Voltage		V_r		Volts
	5R5S		35	
	7R5S		50	
	10R5S		70	
	12R5S		90	
	15R5S		110	
Half Wave Rectified Forward Current, Averaged Over Full Cycle (Resistive Load, 60 Hz, Sine Wave, T_C = 55°C)		I_O	30	Amps
Peak Repetitive Forward Current (T_C = 55°C, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses)		$I_{FM\ (rep)}$	90	Amps
Peak Surge Current (T_C = 55°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

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

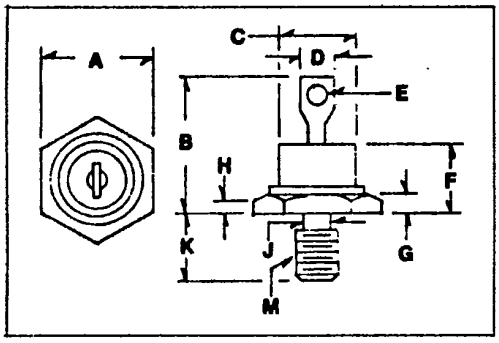
Characteristics	Symbol	Value	Unit
Max Full Cycle Forward Voltage Drop, Averaged Over Full Cycle (I_O (Max), 60 Hz Square Wave, $T_C = 55°C$)	$V_{F(AV)}$	.45	Vdc
Max Instantaneous Forward Drop (IF = 30 Adc, T_C = 25°C, 300 μs Pulse)	V_F	.9	Vdc
Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle (Rated V_R, 60Hz Square Wave, $T_C = 100°C$)	$I_{R(AV)}$	2.5*	mA
Max Reverse Leakage Current (Rated V_R, T_C = 25°C)	I_R	250*	μAdc
Max Junction Capacitance (V_R = 10 V, T_C = 25°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 = 500ma, I_R = 1A, I_{RR} = 250ma)	t_{rr}	---	40	50	ns

PHYSICAL DIMENSIONS

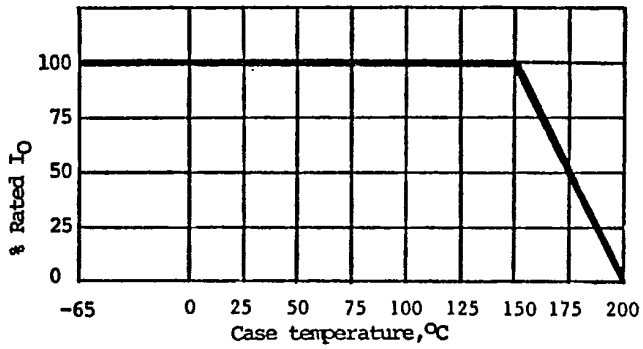


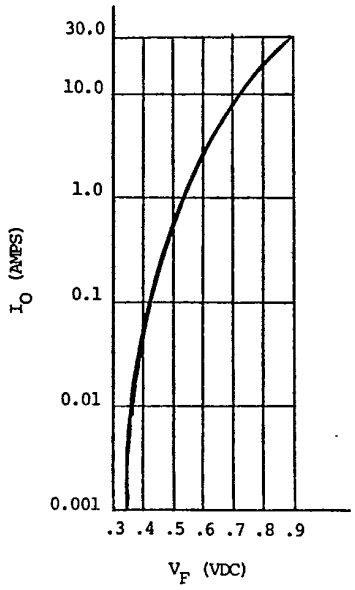
KEY TO DIMENSIONS:

(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





SSDI SOLID STATE DEVICES, INC.

P.O. Box 577, La Mirada, California 90637

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T-03-19

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

MILITARY GRADE REPLACEMENT FOR COMMERCIAL DO-5

SSDI
14830 Valley View Avenue
La Mirada, California 90638
P. O. Box 577
La Mirada, California 90637
(213) 921-9660
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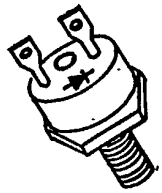
CASE STYLE T
2 PIN TO—61



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	$V_{RM(rep)}$, V_R	50	Volts
	7R5/61		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, 60 Hz, Sine Wave, $T_C = 55°C$)		I_O	30	Amps
Peak Repetitive Forward Current ($T_C = 55°C$, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses)		$I_{FM(rep)}$	90	Amps
Peak Surge Current ($T_C = 55°C$, 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

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

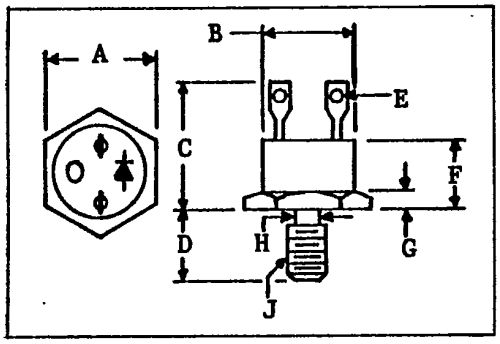
Characteristics	Symbol	Value	Unit
Max Full Cycle Forward Voltage Drop, Averaged Over Full Cycle, (I_O (Max), 60 Hz Square Wave, T_C = 55°C)	$V_{F(AV)}$	.5	Vdc
Max Instantaneous Forward Drop (IF = 30 Adc, T_C = 25°C, 300 μs Pulse)	V_F	1.0	Vdc
Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle, (Rated V_R, 60Hz, Square Wave, T_C = 100°C)	$I_{R(AV)}$	2.5*	mA
Max Reverse Leakage Current (Rated V_R, T_C = 25°C)	I_R	250*	uA
Max Junction Capacitance (V_R = 10 V, T_C = 25°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 = 500ma, I_R = 1A, I_{RR} = 250ma)	t_{rr}	---	40	50	ns

PHYSICAL DIMENSIONS

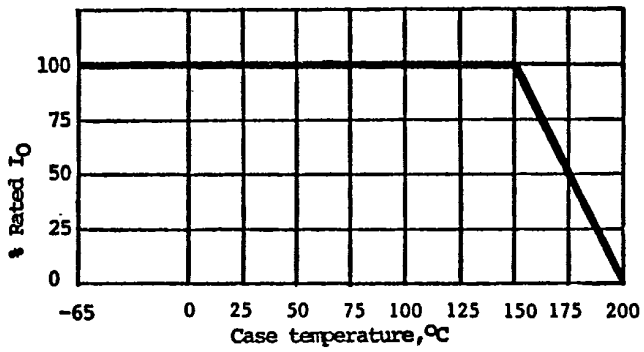


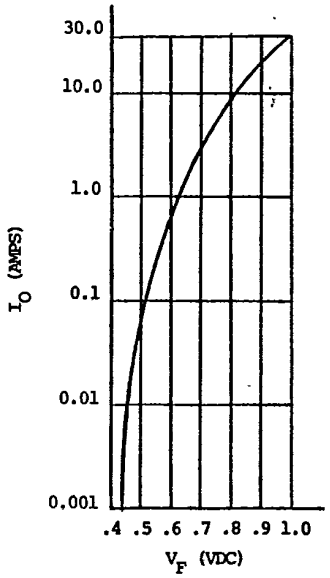
KEY TO DIMENSIONS:

(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 = ¼ - 28 UNF-2A

TYPICAL OPERATING CURVES





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30 AMP
EPION II HIGH SPEED RECTIFIER
50—150 VOLTS

T-03-19

SSDI

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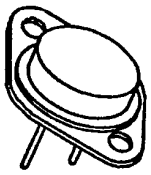
CASE STYLE R
TO—3 WITH .060 PINS



FEATURES

- RADIATION TOLERANT
- ULTRA FAST RECOVERY 50 NSEC MAX
- REVERSE VOLTAGE UP TO 150 VOLTS
- LOW FORWARD VOLTAGE DROP 450 MV AVERAGE
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- 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	$V_{RM\ (rep)}$, V_R	50	Volts
	7R5/3D		70	
	10R5/3D		100	
	12R5/3D		125	
	15R5/3D		150	
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, 60 Hz, Sine Wave, $T_C = 55°C$)		I_O	30	Amps
Peak Repetitive Forward Current ($T_C = 55°C$, 8.3 ms Pulse, Allow Junction to Reach Equilibrium Between Pulses)		$I_{FM\ (rep)}$	110	Amps
Peak Surge Current ($T_C = 55°C$, 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

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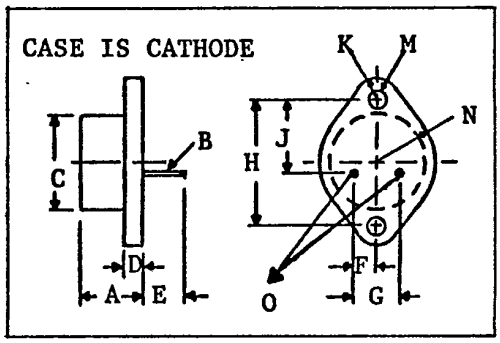
Max Full Cycle Reverse Leakage Current, Averaged Over Full Cycle (Rated V_R, 60Hz, Square Wave, $T_C = 100°C$)	$I_{R(AV)}$	2.5*	mA
Max Reverse Leakage Current (Rated V_R, T_C = 25°C)	I_R	250*	μAdc
Max Junction Capacitance (V_R = 10 V, T_C = 25°C)	C_J	250	pf

REVERSE RECOVERY CHARACTERISTICS

*LOWER LEAKAGE DEVICES AVAILABLE FROM FACTORY

Characteristics	Symbol	Min	Typ	Max	Unit
Reverse Recovery Time (I_F = 500ma, I_R = 1A, I_{RR} = 250ma)	t_{rr}	--	40	50	ns

PHYSICAL DIMENSIONS

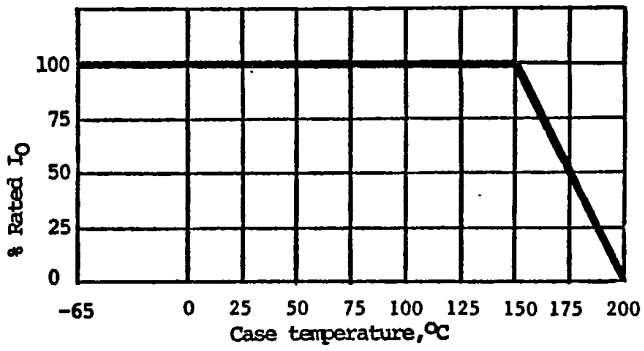


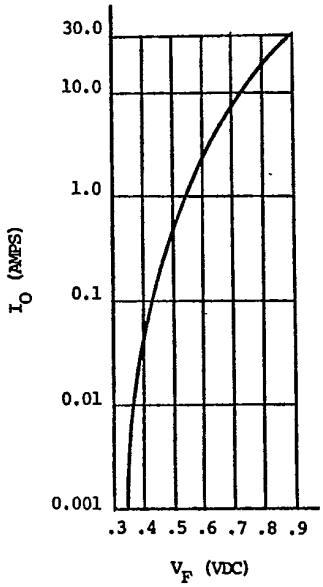
KEY TO DIMENSIONS:

(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





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