DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

1N5802-1N5806

HIGH EFFICIENCY RECTIFIERS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Working peak reverse voltage			
1N5802	V_{RWM}	50	V
1N5803		75	
1N5804		100	
1N5805		125	
1N5806		150	
Forward surge current (1)	I_{FSM}	35	A
Average rectified output current @ T_L = 75°C at 3/8" lead length (2)	I_{O1}	2.5	A
Average rectified output current @ T_A = 55°C at 3/8" lead length (3)	I_{O2}	1.0	A
Capacitance @ V_R = 10V, f = 1MHz, V_{sig} = 50mV(p-p)	C	25	pF
Reverse recovery time (4)	t_{rr}	25	ns
Solder temperature @ 10 s	T_{SP}	260	°C
Junction and storage temperature range	T_J, T_{stg}	-65 to +175	°C
Thermal resistance junction to lead (L = 0.375")	$R_{\Theta JL}$	36	°C/W

Note 1: T_A = 25°C @ I_O = 1.0A and V_{RWM} for 10 8.3ms surges at 1 minute intervals.
Note 2: I_{O1} is rated at 2.5A @ T_L = 75°C at 3/8" lead length. Derate at 25mA/°C for T_L above 75°C.
Note 3: I_{O2} is rated at 1.0A @ T_A = 55°C for PC boards where thermal resistance from mounting point t ambient is sufficiently controlled ($R_{\Theta JX}$ < 154°C/W) where $T_{J(max)}$ 175°C is not exceeded. Derate at 8.33mA/°C for T_A above 55°C.
Note 4: I_F = 0.5A, I_{RM} = 0.5A, $I_{R(REC)}$ = 0.05A.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Part number	Minimum breakdown voltage @ 100µA	Maximum forward voltage		Maximum reverse current @ V_{RWM}		Maximum surge current (5)	Maximum reverse recovery time (6)	Thermal impedance @ t_H = 10ms (7)
	$V_{(BR)}$	V_{FM}		I_R		I_{FSM}	t_{rr}	$Z_{\Theta JX}$
	Volts	Volts		µA		Amps	ns	°C/W
		I_F = 1.0A	I_F = 2.5A	25°C	125°C			
1N5802	60	0.875	0.975	1	175	35	25	4.0
1N5803	85	0.875	0.975	1	175	35	25	4.0
1N5804	110	0.875	0.975	1	175	35	25	4.0
1N5805	135	0.875	0.975	1	175	35	25	4.0
1N5806	160	0.875	0.975	1	175	35	25	4.0

Note 5: T_A = 2.5°C @ I_O = 1.0A and V_{RWM} for ten 8.3ms surges at 1 minute intervals.
Note 6: I_F = 0.5A, I_{RM} = 0.5A, $I_{R(REC)}$ = 0.05A.
Note 7: See figure 1 for thermal impedance curve.

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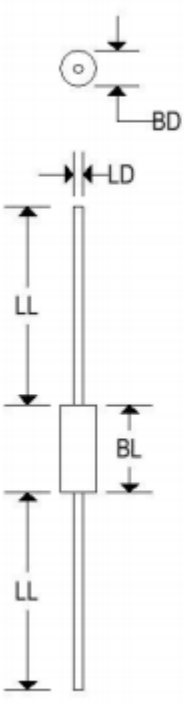
MECHANICAL CHARACTERISTICS

Case	Digi A
Marking	Alpha Numeric
Polarity	Cathode Band



	Digi A			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.060	0.095	1.524	2.413
BL	0.125	0.205	3.175	5.207
LD	0.026	0.033	0.660	0.838
LL	1.000	1.500	25.400	38.100

BL includes slugs and uncontrolled area of the leads

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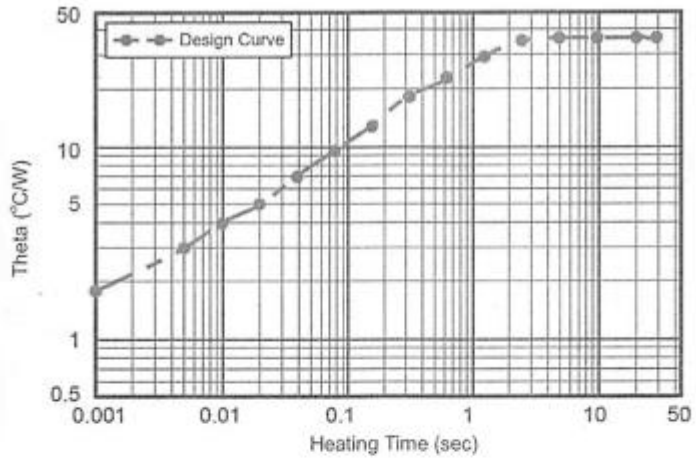

FIGURE 1
Maximum Thermal Impedance

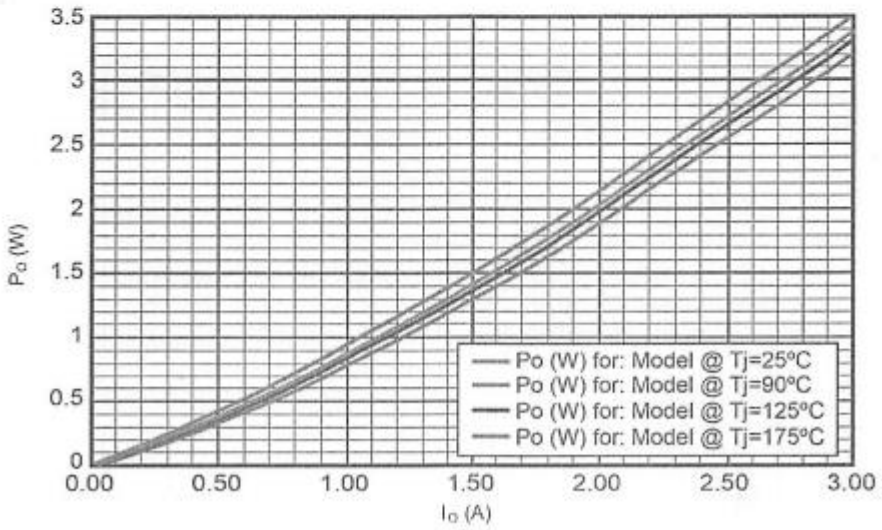

FIGURE 2
Rectifier Power vs I_O (Average Forward Current)

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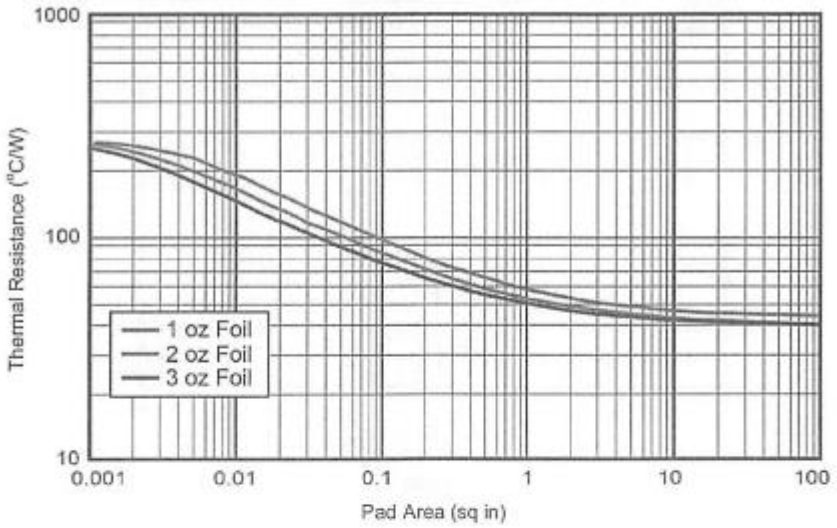

FIGURE 3

Thermal Resistance vs FR4 Pad Area At Ambient

PCB horizontal (for each pad) with 1, 2, and 3 oz copper

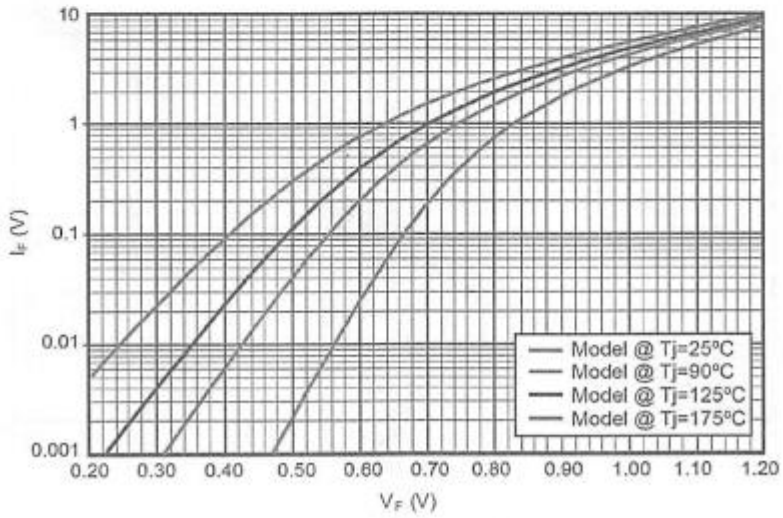

FIGURE 4

Forward Voltage vs Forward Current