

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

Rating	Symbol	Value	Unit
Peak repetitive off-state voltage⁽¹⁾ ($T_j = 110^\circ\text{C}$) MAC37-1,MAC38-1 MAC37-2,MAC38-2 MAC37-3,MAC38-3 MAC37-4,MAC38-4 MAC37-5,MAC38-5 MAC37-6,MAC38-6 MAC37-7,MAC38-7	V_{DRM}	25 50 100 200 300 400 500	Volts
RMS on-state current	$I_{\text{T(RMS)}}$	25	Amps
Peak non-repetitive surge current (1 cycle, 60Hz, $T_j = -40$ to $+110^\circ\text{C}$)	I_{TSM}	225	Amps
Circuit fusing considerations ($T_j = -40$ to $+110^\circ\text{C}$, $t = 8.3\text{ms}$)	I^2t	210	A^2s
Peak gate power⁽²⁾	P_{GM}	5.0	Watts
Average gate power	$P_{\text{G(AV)}}$	0.5	Watts
Peak gate current⁽²⁾	I_{GM}	2	Amps
Operating junction temperature range	T_j	-40 to +110	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 to +150	$^\circ\text{C}$
Mounting torque		30	In. lb.

Note 1: For either direction of blocking voltage. V_{DRM} for all types can be applied on a continuous dc basis without incurring damage. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.

Note 2: $T_j = 110^\circ\text{C}$, 1 second maximum duration; 5.0% duty cycle, $I_{\text{M}} = 10\text{A}$.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\theta\text{JC}}$	1.0	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS @ 25°C unless otherwise noted

Characteristic	Symbol	Min	Typ.	Max	Unit
Peak blocking current (either direction) ($V_D = \text{Rated } V_{DRM}, T_J = 110^\circ\text{C}$)	I_{DRM}	-	-	2.0	mA
Peak on-state voltage (either direction) ($I_{TM} = 35\text{A peak}$)	V_{TM}	-	1.4	1.9	Volts
Gate trigger current (continuous dc) ⁽³⁾ ($V_D = 7\text{V}, R_L = 47\Omega$) MT2(+),G(+); MT2(-),G(-)	I_{GT}	-	20	75	mA
Gate trigger voltage (continuous dc) ⁽³⁾ ($V_D = 7\text{V}, R_L = 47\Omega$) MT2(+),G(+); MT2(-),G(-)	V_{GT}	-	1.0	3.0	Volts
Gate trigger voltage (continuous dc) ⁽³⁾ ($V_D = \text{Rated } V_{DRM}, R_L = 100\Omega, T_J = 110^\circ\text{C}$) MT2(+),G(+); MT2(-),G(-)	V_{GD}	0.2	-	-	Volts
Holding current (either direction) ($V_D = 7\text{V}, I_{TM} = 150\text{mA}, \text{gate open}$)	I_H	-	10	75	mA
Gate controlled turn-on time ($I_{TM} = 25\text{A}, I_{GT} = 200\text{mA}$)	t_{on}	-	1.0	-	μs
Critical forward voltage application rate (@ $V_{DRM}, T_J = 110^\circ\text{C}, \text{gate open}$)	dv/dt	-	100	-	$\text{V}/\mu\text{s}$

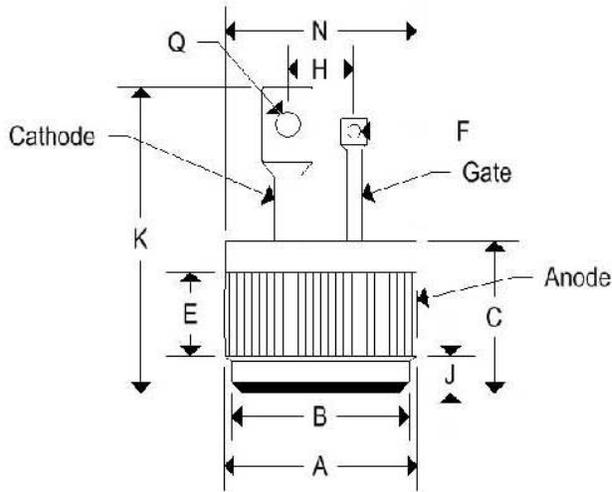
Note 3: All voltage polarity reference to Main Terminal 1.

MAC37 SERIES MAC38 SERIES

BIDIRECTIONAL THYRISTORS

MECHANICAL CHARACTERISTICS

Case	Digi PF2 (MAC37 Series)
Marking	Body painted, alpha-numeric



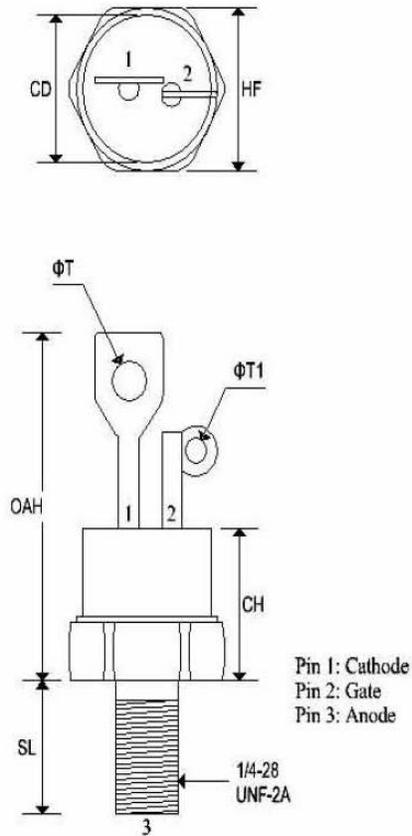
	DIGI PF2			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.501	0.505	12.730	12.830
B	0.465	0.475	11.810	12.060
C	0.330	0.380	8.390	9.650
E	0.100	-	2.540	-
F	0.035	0.085	0.890	2.160
J	0.080	0.097	2.040	2.460
K	-	0.800	-	20.320
N	-	0.510	-	12.950
Q	0.065	0.160	1.650	4.060

MAC37 SERIES MAC38 SERIES

BIDIRECTIONAL THYRISTORS

MECHANICAL CHARACTERISTICS

Case	TO-48 (MAC38 Series)
Marking	Alpha-numeric
Pin out	See below



	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.543	-	13.793
CH	-	0.550	-	13.970
HF	0.544	0.563	13.817	14.301
OAH	-	1.193	-	30.303
SL	0.422	0.453	10.718	11.507
ΦT	0.125	0.165	3.175	4.191
ΦT ₁	0.060	0.075	1.524	1.905

FIGURE 1 – MAXIMUM THERMAL RESPONSE

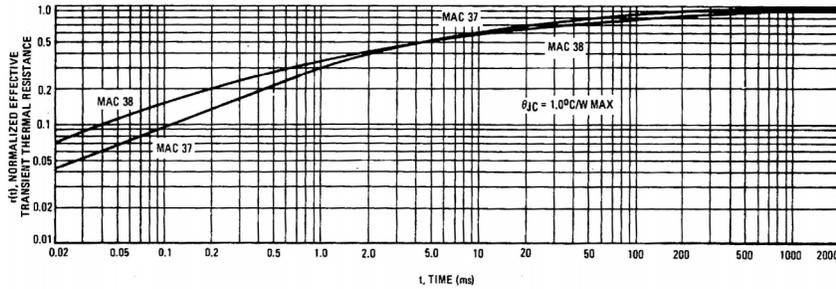


FIGURE 2 – AVERAGE CURRENT DERATING

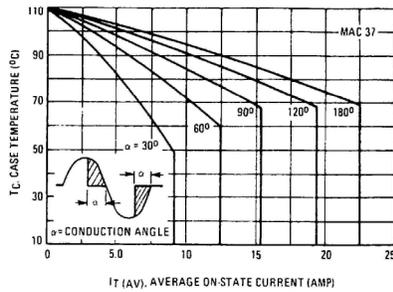


FIGURE 3 – RMS CURRENT DERATING

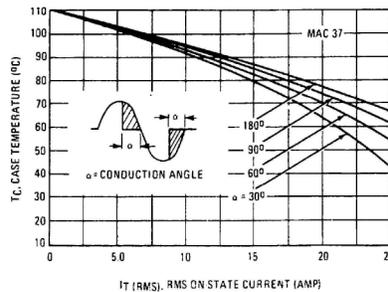


FIGURE 4 – AVERAGE CURRENT DERATING

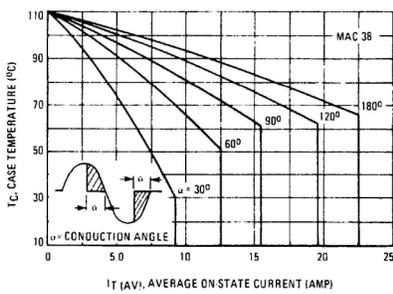


FIGURE 5 – RMS CURRENT DERATING

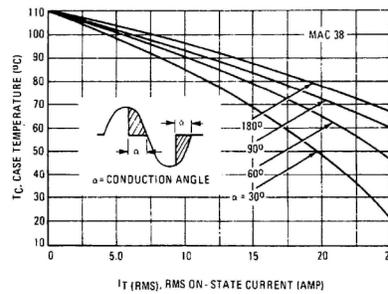


FIGURE 6 – POWER DISSIPATION versus AVERAGE CURRENT

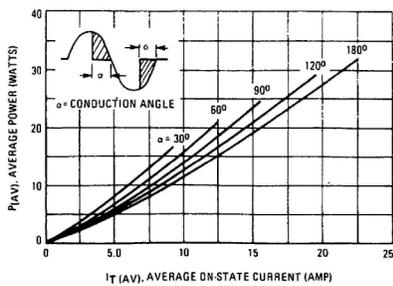


FIGURE 7 – POWER DISSIPATION versus RMS CURRENT

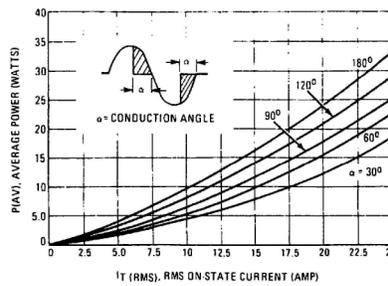


FIGURE 8 – MAXIMUM ON-STATE CHARACTERISTICS

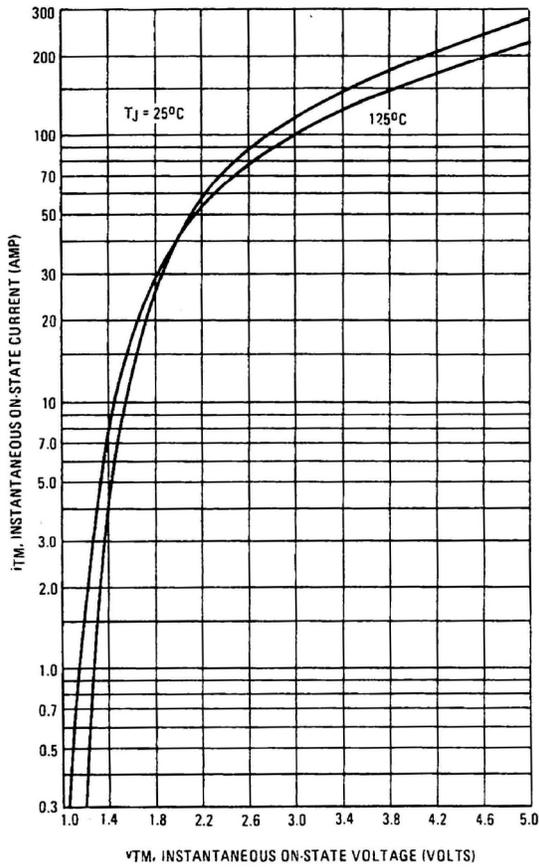


FIGURE 9 – MAXIMUM MULTI-CYCLE SURGE RATING

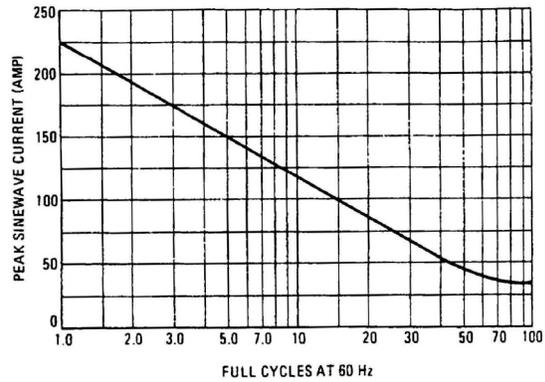


FIGURE 10 – TYPICAL HOLDING CURRENT

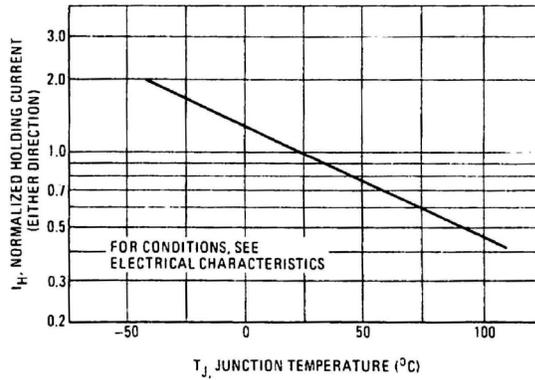


FIGURE 11 – TYPICAL GATE TRIGGER CURRENT

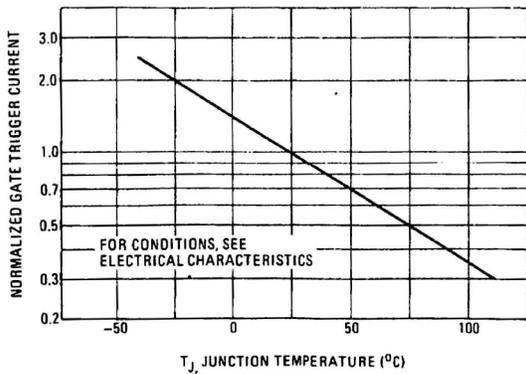


FIGURE 12 – TYPICAL GATE TRIGGER VOLTAGE

