DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

C228, C22803, C229 SERIES

SILICON CONTROLLED RECTIFIER

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 = -40 to +125°C)			
C228F, C228F3, C229F		50	
C228A, C228A3, C229A		100	
C228B, C228B3, C229B	V_{RRM}, V_{DRM}	200	Volts
C228C, C228C3, C229C		300	
C228D, C228D3, C229D		400	
C228E, C228E3, C229E		500	
C228M, C228M3, C229M		600	
Peak non-repetitive reverse voltage (T_J = -40 to +125°C)			
C228F, C228F3, C229F		75	
C228A, C228A3, C229A		150	
C228B, C228B3, C229B	V_{RSM}	300	Volts
C228C, C228C3, C229C		400	
C228D, C228D3, C229D		500	
C228E, C228E3, C229E		600	
C228M, C228M3, C229M		720	
Forward current RMS	$I_{T(RMS)}$	35	Amps
Peak surge current (one cycle, 60Hz, T_C = -40 to +125°C)	I_{TSM}	300	Amps
Circuit fusing considerations (T_C = -40 to +125°C, t = 8.3ms)	I^2t	370	A^2s
Peak gate power	P_{GM}	5	Watts
Average gate power	$P_{G(AV)}$	0.5	Watts
Peak forward gate current	I_{GM}	2	Amps
Operating junction temperature range	T_J	-40 to +125	°C
Storage temperature range	T_{stg}	-40 to +150	°C
Mounting torque		30	In. lb.

Note 1: V_{DRM} and V_{RRM} for all types can be applied on a continuous basis without incurring damage. Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case			
C228 and C229 SERIES	$R_{\Theta JC}$	1.70	°C/W
C228()3 SERIES		1.85	

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Peak forward or reverse blocking current (Rated V_{DRM} or V_{RRM}, gate open)	I_{DRM}, I_{RRM}				
T_C = 25°C		-	-	10	µA
T_C = 125°C		-	-	3	mA
Forward "on" voltage (I_{TM} = 100A peak)	V_T	-	-	1.9	Volts
Gate trigger current (continuous dc)					
(V_D = 12V, R_L = 80Ω, T_C = 25°C)	I_{GT}	-	-	40	mA
(V_D = 6V, R_L = 80Ω, T_C = -40°C)		-	-	80	
Gate trigger voltage (continuous dc)					
(V_D = 12V, R_L = 80Ω, T_C = 25°C)	V_{GT}	-	-	2.5	Volts
(V_D = 6V, R_L = 80Ω, T_C = -40°C)		-	-	3	
Gate trigger voltage (Rated V_{DRM}, R_L = 1000Ω, T_C = 125°C)	V_{GT}	0.2	-	-	Volts
Holding current (Anode voltage = 24V, gate open)	I_H				mA
T_C = 25°C		-	-	75	
T_C = -40°C		-	-	150	
Turn-on time (t_d +t_r) (I_{TM} = 35A, I_{GT} = 40mA)	t_{on}	-	1	-	µs
Turn-off time					
(I_{TM} = 10A, I_R = 10A)	t_{off}	-	20	-	µs
(I_{TM} = 10A, I_R = 10A, T_C = 100°C)		-	35	-	
Forward voltage application rate (T_C = 100°C)	dv/dt	-	50	-	V/µs

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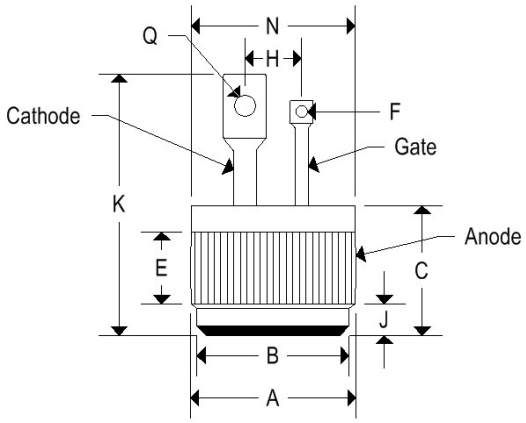
MECHANICAL CHARACTERISTICS

Case	Digi PF1 (C229 SERIES)
Marking	Body painted, alpha-numeric



	DIGI PF1			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.501	0.505	12.730	12.830
F	-	0.160	-	4.060
G	0.085	0.095	2.160	2.410
H	0.060	0.070	1.520	1.780
J	0.300	0.350	7.620	8.890
K	-	1.050	-	26.670
L	-	0.670	-	17.020
Q	0.055	0.085	1.400	2.160

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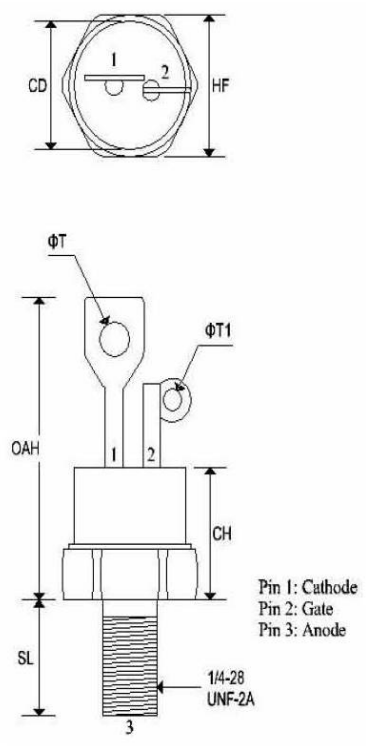
MECHANICAL CHARACTERISTICS

Case	TO-48 (C228, C228()3 SERIES)
Marking	Body painted, alpha-numeric
Polarity	Cathode is stud



	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 – CURRENT DERATING
(HALF-WAVE RECTIFIED SINE WAVE)

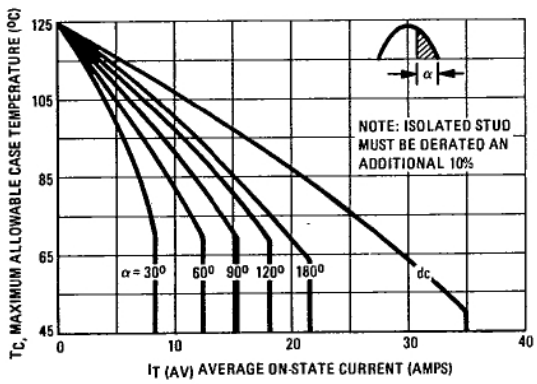


FIGURE 2 – CURRENT DERATING
(FULL-WAVE RECTIFIED SINE WAVE)