DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

C35 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 forward and reverse blocking voltage[1] (T_C = -65 to +125°C)			
C35U	V_{DRM} or V_{RRM}	25	Volts
C35F		50	
C35A		100	
C35G		150	
C35B		200	
C35H		250	
C35C		300	
C35D		400	
C35E		500	
C35M		600	
C35S		700	
C35N		800	
Non-repetitive peak reverse voltage (T_C = -65 to +125°C, V < 5.0ms)			
C35U	V_{RSM}	35	Volts
C35F		75	
C35A		150	
C35G		225	
C35B		300	
C35H		350	
C35C		400	
C35D		500	
C35E		600	
C35M		720	
C35S		840	
C35N		960	
Forward current RMS (all conduction angles)	$I_{T(RMS)}$	35	Amps
Peak non-repetitive surge current (1cycle, 60 Hz)	I_{TSM}	225	Amps
Circuit fusing considerations (t = 8.3ms)	I^2t	75	A^2s
Forward peak gate power	P_{GM}	5	Watts
Forward average gate power	$P_{G(AV)}$	0.5	Watts
Peak reverse gate voltage	V_{GRM}	5	Volts
Operating junction temperature range	T_J	-65 to +125	°C
Storage temperature range	T_{stg}	-65 to +150	°C

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\Theta JC}$	1.7	°C/W

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

Characteristic	Symbol	Min	Typ.	Max	Unit
Peak reverse or forward blocking current					
(V_D = Rated V_{DRM}, T_C = 125°C)					
(V_R = Rated V_{RRM}, T_C = 125°C)					
C35U,F, A, G		-	-	13	
C35B		-	-	12	
C35H	I_{DRM} or	-	-	11	mA
C35C	I_{RRM}	-	-	10	
C35D		-	-	8	
C35E		-	-	6	
C35M		-	-	5	
C35S		-	-	4.5	
C35N		-	-	4	
Average forward or reverse blocking current					
(V_D = Rated V_{DRM}, T_C = 125°C)					
(V_R = Rated V_{RRM}, T_C = 125°C)					
C35U,F, A, G		-	-	6.5	
C35B		-	-	6	
C35H	$I_{DRM(AV)}$ or	-	-	5.5	mA
C35C	$I_{RRM(AV)}$	-	-	5	
C35D		-	-	4	
C35E		-	-	3	
C35M		-	-	2.5	
C35S		-	-	2.25	
C35N		-	-	2	
Peak on-state voltage	V_{TM}				Volts
(I_{TM} = 50.3A peak, pulse width ≤ 1ms, duty cycle ≤ 2.0%)		-	-	2	
Gate trigger current (continuous dc)					
(V_D = 12V, R_L = 50Ω)	I_{GT}	-	6	40	mA
(V_D = 12V, R_L = 50Ω, T_C = -65°C)		-	-	80	
Gate trigger voltage (continuous dc)					
(V_D = 12V, R_L = 50Ω, T_C = -65°C to +125°C)	V_{GT}	-	-	3	Volts
(V_D = Rated V_{DRM}, R_L = 1000Ω, T_C = 125°C)		0.25	-	-	
Holding current	I_H				mA
(V_D = 24V, gate supply = 10V, 20Ω, 45µs minimum pulse width, I_T = 0.5A)		-	-	100	
Critical rate of rise of forward blocking voltage					
(V_D = Rated V_{DRM}, T_C = 125°C)					
C35U, F, M, S, N	dv/dt	10	-	-	V/µs
C35A, G, B, H		20	-	-	
C35C, D, E		25	-	-	

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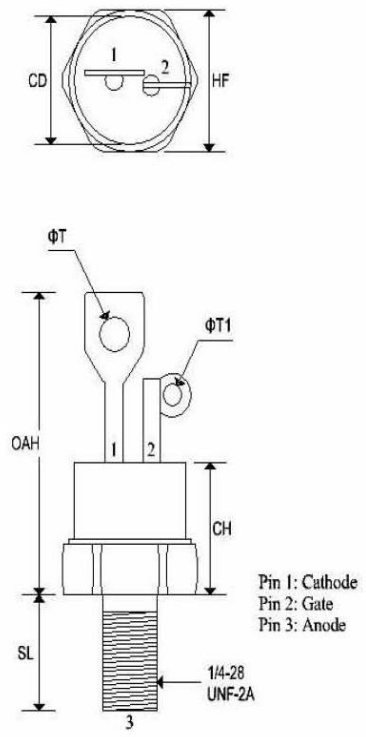
MECHANICAL CHARACTERISTICS

Case	TO-48
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)

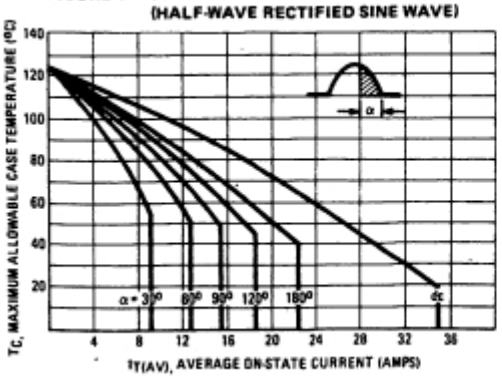


FIGURE 2 – POWER DISSIPATION (HALF-WAVE SINE WAVE)