DIGITRON SEMICONDUCTORS

C106 SERIES — SILICON CONTROLLED RECTIFIER

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak repetitive forward and reverse blocking voltage(1) (R_{GK} = 1kΩ, T_J = -40 to +110°C)			
C106Q	V_{RRM}, V_{DRM}	15	Volts
C106Y		30	
C106F		50	
C106A		100	
C106B		200	
C106C		300	
C106D		400	
C106E		500	
C106M		600	
Forward current RMS (all conduction angles)	$I_{T(RMS)}$	4	Amps
Average forward current (T_A = 30°C)	$I_{T(AV)}$	2.55	Amps
Peak non-repetitive surge current (1/2 cycle, 60Hz, T_J = -40 to +110°C)	I_{TSM}	20	Amps
Circuit fusing considerations (t = 8.3ms)	I^2t	1.65	A^2s
Peak gate power	P_{GM}	0.5	Watts
Average gate power	$P_{G(AV)}$	0.1	Watts
Forward peak gate current	I_{GFM}	0.2	Amps
Peak reverse gate voltage	V_{GRM}	6	Volts
Operating junction temperature range	T_J	-40 to +110	°C
Storage temperature range	T_{stg}	-40 to +150	°C
Mounting torque(2)		6	In. lb.

Note 1: V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.
Note 2: Torque rating applies with use of compression washer. Mounting torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Anode lead and heatsink contact pad are common. Soldering temperature shall not exceed 200°C. For optimum results, an activated flux is recommended.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\Theta JC}$	3	°C/W
Thermal resistance, junction to ambient	$R_{\Theta JA}$	75	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Peak forward or reverse blocking current (V_{AK} = rated V_{DRM} or V_{RRM}, R_{GK} = 1kΩ)	I_{DRM}, I_{RRM}				μA
T_J = 25°C		-	-	10	
T_J = 110°C		-	-	100	
Forward "on" voltage (I_{FM} = 1A peak)	V_{TM}	-	-	2.2	Volts
Gate trigger current (continuous dc) (V_{AK} = 6Vdc, R_L = 100Ω)	I_{GT}	-	30	200	μA
(V_{AK} = 6Vdc, R_L = 100Ω, T_C = -40°C)		-	75	500	
Gate trigger voltage (continuous dc) (V_{AK} = 6Vdc, R_L = 100Ω)	V_{GT}	0.4	0.60	0.8	Volts
(V_{AK} = 6Vdc, R_L = 100Ω, T_C = -40°C)		0.5	0.75	1.0	

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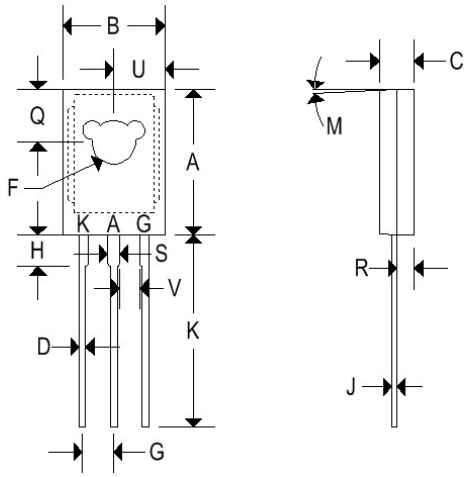
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Holding current (V_D = 12Vdc, R_{GK} = 1kΩ) T_J = 25°C T_J = -40°C T_J = 110°C	I_H	 0.3 0.4 0.14	 - - -	 3 6 2	mA
Forward voltage application rate (T_J = 110°C, R_{GK} = 1000Ω, V_D = rated V_{DRM})	dv/dt	-	8	-	V/µs
Turn-on time	t_{gt}	-	1.2	-	µs
Turn-off time	t_q	-	40	-	µs

MECHANICAL CHARACTERISTICS

Case	TO-126
Marking	Body painted, alpha-numeric
Pin out	See below



	TO-126			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.425	0.435	10.80	11.050
B	0.295	0.305	7.490	7.750
C	0.095	0.105	2.410	2.670
D	0.020	0.026	0.510	0.660
F	0.115	0.125	2.920	3.180
G	0.091	0.097	2.310	2.460
H	0.050	0.095	1.270	2.410
J	0.015	0.025	0.380	0.640
K	0.595	0.655	15.110	16.640
M	3° TYP		3° TYP	
Q	0.148	0.158	3.760	4.010
R	0.045	0.055	1.140	1.400
S	0.025	0.035	0.640	0.890
U	0.145	0.155	3.680	3.940
V	0.040	-	1.020	-

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FIGURE 1 – AVERAGE CURRENT DERATING

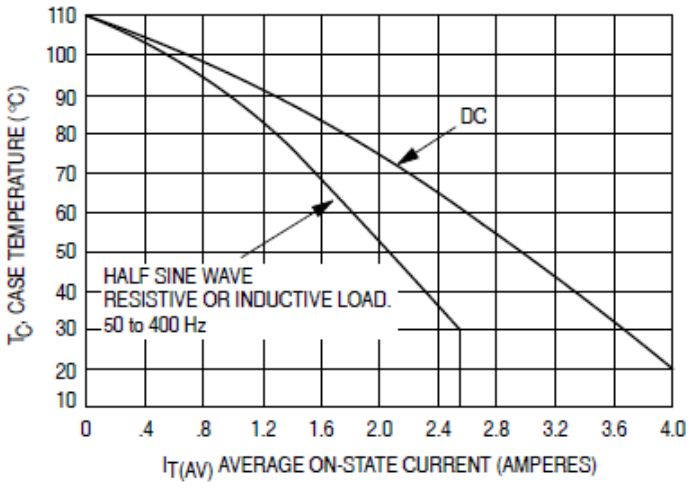
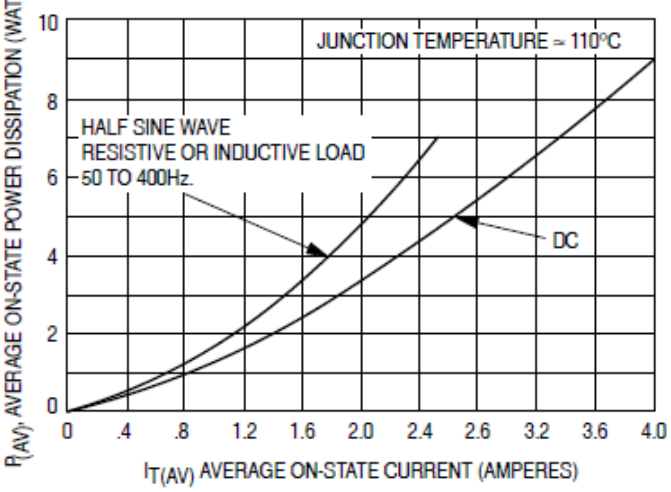


FIGURE 2 – MAXIMUM ON-STATE POWER DISSIPATION



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