

DIGITRON SEMICONDUCTORS

C122 SERIES

8A SILICON CONTROLLED RECTIFIERS

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

Characteristics	C122F	C122A	C122B	C122C	C122D	C122E	C122M	Units
V_{RRM}^{Δ} V_{DRM}^{Δ}	50	100	200	300	400	500	600	V
$I_{T(RMS)}$ ($T_C = 75^{\circ}C$, $\theta = 180^{\circ}$)	8							A
I_{TSM} for one full cycle of applied principal voltage								A
400 Hz	200							
60 Hz	100							
50 Hz	85							
di/dt $V_D = V_{DRM}$, $I_{GT} = 80mA$, $t_r = 0.5\mu s$	100							A/ μs
I^2t $T_J = -65$ to $+100^{\circ}C$, $t = 1$ to 8.3 ms	40							A ² s
P_{GM}^* (for 10 μs max)	16							W
$P_{G(AV)}^*$ (averaging time = 10 ms max)	0.5							W
T_{stg}	-65 to +150							$^{\circ}C$
T_C	-65 to +100							$^{\circ}C$
T_T During soldering for 10 s maximum	250							$^{\circ}C$

Δ These values do not apply if there is a positive gate signal. Gate must be open or negatively biased.

* Any values of peak gate current or peak gate voltage which result in equal or lower power are permissible.

ELECTRICAL CHARACTERISTICS

Characteristics	Limits			Units
	Min	Typ	Max	
I_{DOM} or I_{ROM} $V_D = V_{DRM}$ or $V_R = V_{RRM}$, $T_C = 100^{\circ}C$	-	0.1	0.5	mA
V_T $I_T = 16A$, $T_C = 25^{\circ}C$	-	1.45	1.83	V
I_{GT} $V_D = 12V$ (DC), $R_L = 30\Omega$, $T_C = 25^{\circ}C$	-	10	15	mA
V_{GT} $V_D = 12V$ (DC), $R_L = 30\Omega$, $T_C = 25^{\circ}C$	-	1.0	1.5	V
I_{HO} $T_C = 25^{\circ}C$	-	20	30	mA
dv/dt $V_D = V_{DRM}$ exponential voltage rise, $T_C = 100^{\circ}C$	10	100	-	V/ μs
t_{gt} $V_D = V_{DRM}$, $I_T = 4.5A$, $I_T = 2A$, $I_{GT} = 80mA$, 0.1 μs rise time, $T_C = 25^{\circ}C$	-	1.6	2.5	μs
t_q $V_D = V_{DRM}$, $I_T = 2A$, $t_p = 50\mu s$, $dv/dt = 200V/\mu s$, $di/dt = -10A/\mu s$, $I_{GT} = 200mA$ @ t_{ON} , $T_C = 75^{\circ}C$	-	10	35	μs
$R_{\theta JC}$	-	-	1.8	$^{\circ}C/W$
$R_{\theta JA}$	-	-	75	

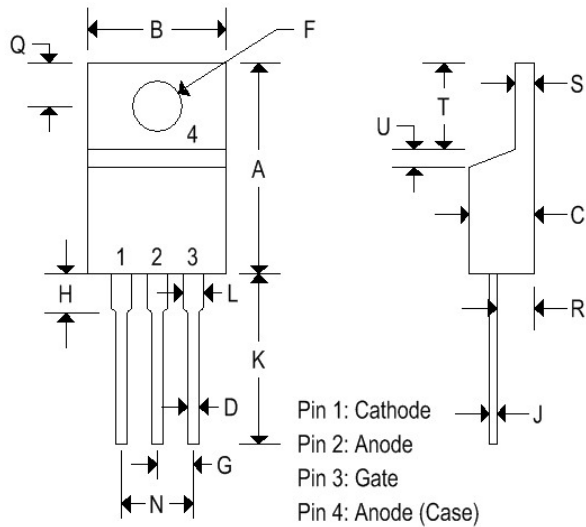
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MECHANICAL CHARACTERISTICS

Case	TO-220AB
Marking	Body painted, alpha-numeric
Pin out	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

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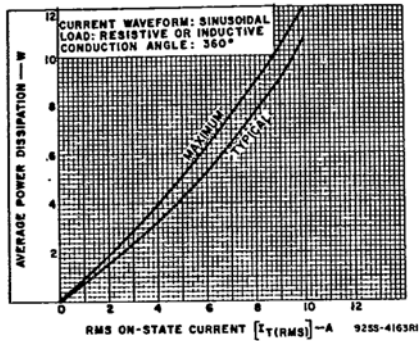


Fig. 1 — Power dissipation vs. on-state current.

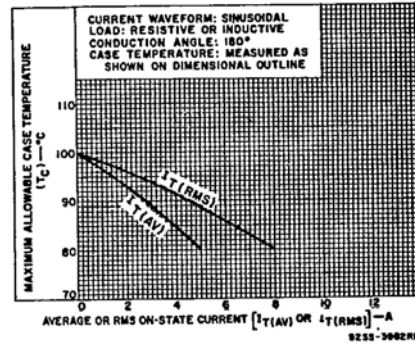


Fig. 2 — Maximum allowable case temperature vs. on-state current.

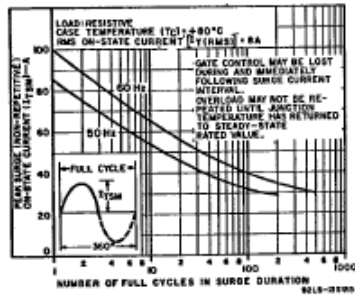


Fig. 3 — Allowable peak surge on-state current vs. surge duration.

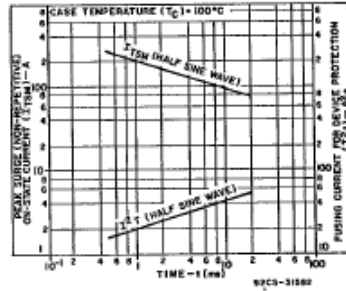


Fig. 4 — Peak surge on-state current and fusing current as a function of time.

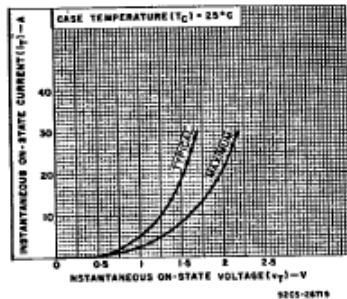


Fig. 5 — Instantaneous on-state current vs. on-state voltage.

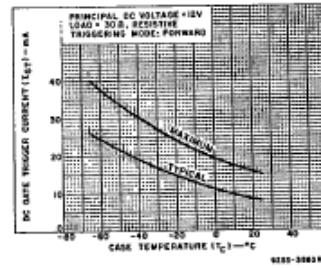


Fig. 6 — DC gate-trigger current vs. case temperature.

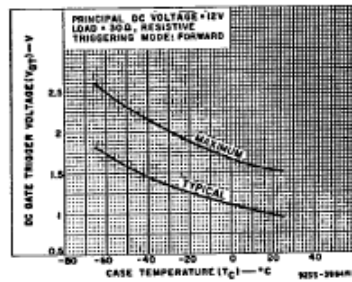


Fig. 7 — DC gate-trigger voltage vs. case temperature.

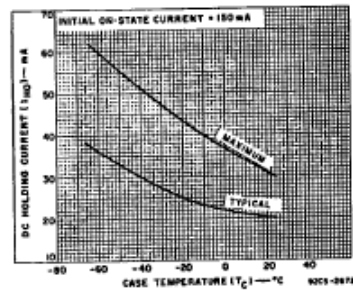


Fig. 8 — Holding current vs. case temperature.

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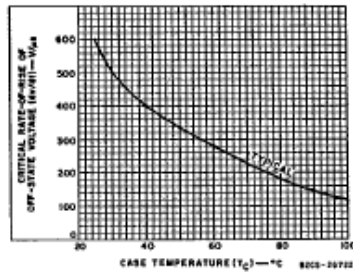


Fig. 9 — Critical rate of rise of off-state voltage vs. case temperature.

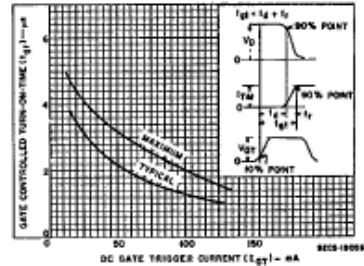


Fig. 10 — Gate-controlled turn-on time vs. gate trigger current.

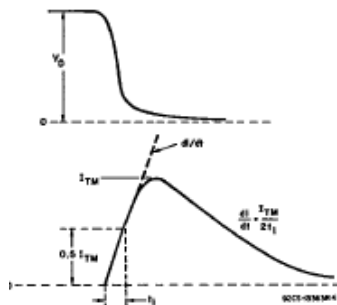


Fig. 11 — Rate of change of on-state current with time (defining di/dt).

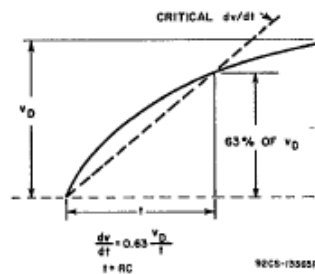


Fig. 12 — Rate of rise of off-state voltage with time (defining critical dv/dt).

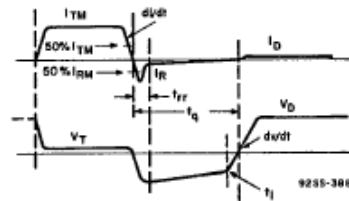


Fig. 13 — Relationship between instantaneous on-state current and voltage, showing reference points for measurement of circuit-commutated turn-off time (t_q).

TERMINAL DESIGNATIONS

