

**TIC108A, TIC108B, TIC108C, TIC108D, TIC108E, TIC108M,
TIC108N, TIC108S**
**P-N-P-N SILICON REVERSE-BLOCKING TRIODE
THYRISTORS**

- 5 A Continuous On-State Current
- 20 A Surge-Current
- Glass Passivated Wafer
- 100 V to 800 V Off-State Voltage
- Max I_{GT} of 1 mA
- Compliance to ROHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value								Unit
		A	B	C	D	E	M	S	N	
V_{DRM}	Repetitive peak off-state voltage (see Note1)	100	200	300	400	500	600	700	800	V
V_{RRM}	Repetitive peak reverse voltage	100	200	300	400	500	600	700	800	V
$I_{T(RMS)}$	Continuous on-state current at (or below) 80°C case temperature (see note2)	5								A
$I_{T(AV)}$	Average on-state current (180° conduction angle) at(or below) 80°C case temperature (see Note3)	3.2								A
I_{TM}	Surge on-state current (see Note4)	20								A
I_{GM}	Peak positive gate current (pulse width $\leq 300 \mu s$)	0.2								A
P_{GM}	Peak power dissipation (pulse width $\leq 300 \mu s$)	1.3								W
$P_{G(AV)}$	Average gate power dissipation (see Note5)	0.3								W
T_C	Operating case temperature range	-40 to +110								°C
T_{stg}	Storage temperature range	-40 to +125								°C
T_L	Lead temperature 1.6 mm from case for 10 seconds	230								°C

TIC108A, TIC108B, TIC108C, TIC108D, TIC108E, TIC108M, TIC108N, TIC108S

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit	
t_{gt}	Gate-controlled Turn-on time	$V_{AA} = 30\text{ V}, R_L = 6\ \Omega$ $R_{GK(\text{eff})} = 5\text{ k}\Omega, V_{in} = 50\text{ V}$	2.9	μs
t_q	Circuit-communicated Turn-off time	$V_{AA} = 30\text{ V}, R_L = 6\ \Omega$ $I_{RM} \approx 8\text{ A}$	13.3	
$R_{\theta JC}$	Junction to case thermal resistance		≤ 3.5	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Junction to free air thermal resistance		≤ 62.5	

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_{DRM}	Repetitive peak off-state current	$V_D = \text{Rated } V_{DRM}$ $R_{GK} = 1\text{ k}\Omega, T_C = 110^{\circ}\text{C}$	-	-	400	μA
I_{RRM}	Repetitive peak reverse current	$V_R = \text{Rated } V_{RRM}, I_G = 0$ $T_C = 110^{\circ}\text{C}$	-	-	1	mA
I_{GT}	Gate trigger current	$V_{AA} = 6\text{ V}, R_L = 100\ \Omega$ $t_{p(g)} \geq 20\mu\text{s}$	0.2	-	200	μA
V_{GT}	Gate trigger voltage	$V_{AA} = 6\text{ V}, R_L = 100\ \Omega$ $R_{GK} = 1\text{ k}\Omega, t_{p(g)} \geq 20\mu\text{s}$ $T_C = -40^{\circ}\text{C}$	-	-	1.2	V
		$V_{AA} = 6\text{ V}, R_L = 100\ \Omega$ $R_{GK} = 1\text{ k}\Omega, t_{p(g)} \geq 20\mu\text{s}$	0.4	0.6	1	
		$V_{AA} = 6\text{ V}, R_L = 100\ \Omega$ $R_{GK} = 1\text{ k}\Omega, t_{p(g)} \geq 20\mu\text{s}$ $T_C = 110^{\circ}\text{C}$	0.2	-	-	
I_H	Holding current	$V_{AA} = 6\text{ V}, R_{GK} = 1\text{ k}\Omega$ initiating $I_T = 20\text{ mA}$	-	-	10	mA
		$V_{AA} = 6\text{ V}, R_{GK} = 1\text{ k}\Omega$ initiating $I_T = 20\text{ mA}$ $T_C = -40^{\circ}\text{C}$	-	-	15	
V_{TM}	Peak on-state voltage	$I_{TM} = 5\text{ A}$ (see Note6)	-	-	1.7	V
dv/dt	Critical rate of rise of off-state voltage	$V_D = \text{Rated } V_D, R_{GK} = 1\text{ k}\Omega$ $T_C = 110^{\circ}\text{C}$	-	80	-	V/ μs

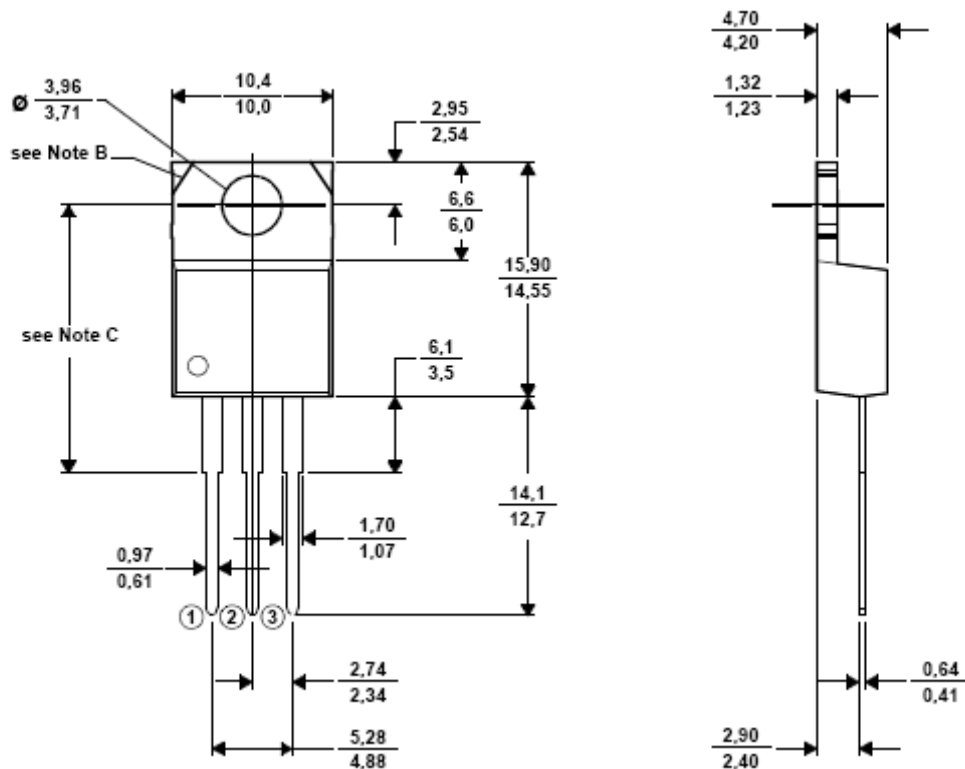
TIC108A, TIC108B, TIC108C, TIC108D, TIC108E, TIC108M, TIC108N, TIC108S

Notes:

1. These values apply when the gate-cathode resistance $R_{GK} = 1k\Omega$
2. These values apply for continuous dc operation with resistive load. Above 80°C derate linearly to zero at 110°C.
3. This value may be applied continuously under single phase 50 Hz half-sine-wave operation with resistive load. Above 80°C derate linearly to zero at 110°C.
4. This value applies for one 50 Hz half-sine-wave when the device is operating at (or below) the rated value of peak reverse voltage and on-state current. Surge may be repeated after the device has returned to original thermal equilibrium.
5. This value applies for a maximum averaging time of 20 ms.
6. This parameters must be measured using pulse techniques, $t_w = 300\mu s$, duty cycle $\leq 2\%$, voltage-sensing contacts, separate from the current-carrying contacts, are located within 3.2mm (1/8 inch) from the device body.

MECHANICAL DATA CASE TO-220

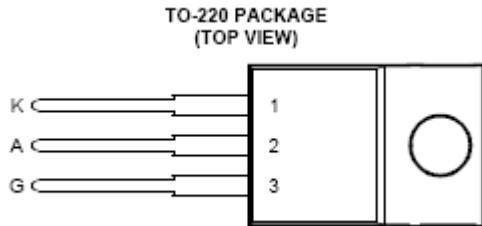
TO220





TIC108A, TIC108B, TIC108C, TIC108D, TIC108E, TIC108M, TIC108N, TIC108S

PINNING



Pin 1 :	kathode
Pin 2 :	Anode
Pin 3 :	Gate

Pin 2 is in electrical contact with the mounting base.

Revised September 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.