

# DIGITRON SEMICONDUCTORS

## T6410 SERIES

## BIDIRECTIONAL TRIODE THYRISTORS

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
<b>Repetitive peak off-stage voltage, gate open</b> ( $T_J = -65$ to $+110^\circ\text{C}$ ) T6410B T6410D T6410M T6410N	$V_{\text{DRM}}$	200 400 600 800	Volts
<b>RMS on-state current</b> (conduction angle = $360^\circ$ , $T_C \leq 65^\circ\text{C}$ )	$I_{\text{T(RMS)}}$	40	Amps
<b>Peak non-repetitive surge current</b> (One Cycle, 60Hz)	$I_{\text{TSM}}$	300	Amps
<b>Circuit fusing considerations</b> ( $T_J = -65$ to $+110^\circ\text{C}$ , $t = 1.25$ to $10\text{ms}$ )	$I^2t$	450	$\text{A}^2\text{s}$
<b>Peak gate power</b> (pulse width = $10\mu\text{s}$ )	$P_{\text{GM}}$	40	Watts
<b>Average gate power</b>	$P_{\text{G(AV)}}$	0.75	Watts
<b>Peak gate current</b> (pulse width $\leq 10\mu\text{s}$ )	$I_{\text{GM}}$	12	Amps
<b>Operating junction temperature range</b>	$T_J$	-65 to +110	$^\circ\text{C}$
<b>Storage temperature range</b>	$T_{\text{stg}}$	-65 to +150	$^\circ\text{C}$
<b>Stud torque</b>		30	In. lb.

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
<b>Thermal resistance, junction to case</b>	$R_{\theta\text{JC}}$	0.9	$^\circ\text{C/W}$

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>Peak off state current</b> ( $V_D = V_{\text{DRM}}$ , gate open, $T_J = 110^\circ\text{C}$ )	$I_{\text{DRM}}$	-	-	4	mA
<b>Peak on-state voltage</b> (either direction) ( $I_{\text{TM}} = 100\text{A}$ peak)	$V_{\text{TM}}$	-	1.5	2.0	Volts
<b>DC gate trigger current</b> (continuous dc) ( $V_D = 12\text{V}$ , $R_L = 30\Omega$ ) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+) MT2(+), G(+); MT2(-), G(-), $T_C = -65^\circ\text{C}$ MT2(+), G(-); MT2(-), G(+), $T_C = -65^\circ\text{C}$	$I_{\text{GT}}$	-	15 30 20 40 - -	50 80 50 80 125 240	mA
<b>DC gate trigger voltage</b> (continuous dc), all trigger modes ( $V_D = 12\text{V}$ , $R_L = 30\Omega$ ) ( $V_D = 12\text{V}$ , $R_L = 30\Omega$ , $T_C = -65^\circ\text{C}$ ) ( $V_D = \text{Rated } V_{\text{DRM}}$ , $R_L = 125\Omega$ , $T_C = 110^\circ\text{C}$ )	$V_{\text{GT}}$	- - 0.2	1.35 - -	2.5 3.4 -	Volts
<b>Holding current</b> (either direction) ( $V_D = 12\text{V}$ , gate open, $I_T = 500\text{mA}$ , $T_C = 25^\circ\text{C}$ ) ( $V_D = 12\text{V}$ , gate open, $I_T = 500\text{mA}$ , $T_C = -65^\circ\text{C}$ )	$I_{\text{H}}$	- -	25 -	60 100	mA
<b>Gate controlled turn on time</b> ( $V_D = \text{Rated } V_{\text{DRM}}$ , $I_T = 60\text{A}$ , $I_{\text{GT}} = 200\text{mA}$ , rise time = $0.1\mu\text{s}$ )	$t_{\text{gt}}$	-	1.7	3	$\mu\text{s}$
<b>Critical rate of rise of commutating voltage</b> (commutating $di/dt = 22\text{A/ms}$ , gate unenergized, $V_D = \text{Rated } V_{\text{DRM}}$ , $I_{\text{T(RMS)}} = 40\text{A}$ , $T_C = 65^\circ\text{C}$ )	$dv/dt(c)$	-	5	-	$\text{V}/\mu\text{s}$

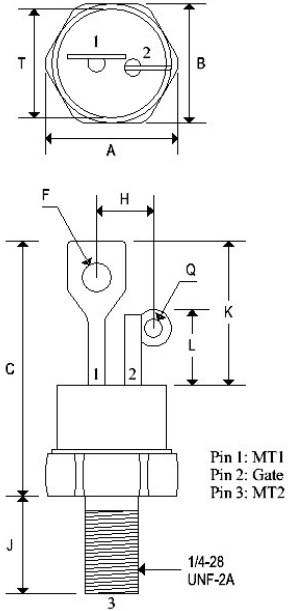
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BIDIRECTIONAL TRIODE THYRISTORS

## MECHANICAL CHARACTERISTICS

Case	TO-48
Marking	Alpha-numeric
Polarity	Cathode is stud



	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.604	0.614	15.340	15.600
B	0.551	0.559	14.000	14.200
C	1.050	1.190	2.670	30.230
F	0.135	0.160	3.430	4.060
H	-	0.265	-	6.730
J	0.420	0.455	10.670	11.560
K	0.620	0.670	15.750	17.020
L	0.300	0.350	7.620	8.890
Q	0.055	0.085	1.400	2.160
T	0.501	0.505	12.730	12.830

