

New Jersey Semi-Conductor Products, Inc.

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**2N6400  
thru  
2N6405  
MCR221-5  
MCR221-7  
MCR221-9**



**Silicon Controlled  
Rectifiers**  
**Reverse Blocking Triode Thyristors**

**\*MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
<b>Peak Repetitive Forward and Reverse Voltage</b>	$V_{RRM}$ or $V_{DRM}$		Volts
2N6400		50	
2N6401		100	
2N6402		200	
MCR221-5		300	
2N6403		400	
MCR221-7		500	
2N6404		600	
MCR221-9		700	
2N6405		800	
<b>RMS On-State Current, <math>T_C = 90^\circ\text{C}</math></b>	$I_T(\text{RMS})$	16	Amps
<b>Average On-State Current</b>	$I_T(\text{AV})$	10	Amps
<b>Peak Non-Repetitive Forward Surge Current</b> (1/2 cycle, Sine Wave, 60 Hz, $T_J = 125^\circ\text{C}$ )	$I_{TSM}$	160	Amps
<b>Circuit Fusing</b> ( $T_J = -40$ to $+125^\circ\text{C}$ , $t = 1$ to 8.3 ms)	$I^2t$	100	$\text{A}^2\text{s}$
<b>Forward Peak Gate Power</b>	$P_{GM}$	20	Watts
<b>Forward Average Gate Power</b>	$P_{G(\text{AV})}$	0.5	Watt
<b>Forward Peak Gate Current</b>	$I_{GM}$	2	Amps
<b>Operating Junction Temperature Range</b>	$T_J$	-40 to +125	$^\circ\text{C}$
<b>Storage Temperature Range</b>	$T_{stg}$	-40 to +150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>*Peak Forward or Reverse Blocking Current</b> (Rated $V_{DRM}$ or $V_{RRM}$ ) $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	$I_{DRM}, I_{RRM}$	—	—	10 2	$\mu\text{A}$ mA
<b>*Peak On-State Voltage</b> ( $I_{TM} = 3.2$ A Peak, Pulse Width $\leq 1$ ms, Duty Cycle $\leq 2\%$ )	$V_{TM}$	—	—	1.7	Volts
<b>*Gate Trigger Current (Continuous dc)</b> ( $V_D = 12$ Vdc, $R_L = 50$ Ohms)	$I_{GT}$	—	5	30	mA
<b>*Gate Trigger Voltage (Continuous dc)</b> ( $V_D = 12$ Vdc, $R_L = 50$ Ohms)  ( $V_D = \text{Rated } V_{DRM}, R_L = 50$ Ohms)	$V_{GT}$	— — 0.2	0.7 — —	1.5 2.5 —	Volts
<b>*Holding Current</b> ( $V_D = 12$ Vdc)	$I_H$	—	6 —	40 60	mA
<b>Turn-On Time</b> ( $I_{TM} = 16$ A, $I_{GT} = 40$ mAdc, $V_D = \text{Rated } V_{DRM}$ )	$t_{gt}$	—	1	—	$\mu\text{s}$
<b>Turn-Off Time</b> ( $I_{TM} = 16$ A, $I_R = 16$ A, $V_D = \text{Rated } V_{DRM}$ )	$t_q$	—	15 35	—	$\mu\text{s}$
<b>Critical Rate-of-Rise of Off-State Voltage</b> ( $V_D = \text{Rated } V_{DRM}$ , Exponential Waveform)	$dv/dt$	—	50	—	$\text{V}/\mu\text{s}$



Quality Semi-Conductors