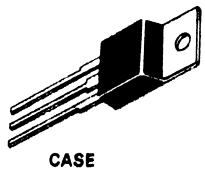
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2N6394 thru 2N6399 MCR220-5 MCR220-7 MCR220-9



CASE
TO-220AB

***MAXIMUM RATINGS**

Rating		Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage (T_J = −40 to 125°C)	2N6394	V_{RRM} or V_{DRM}	50	Volts
	2N6395		100	
	2N6396		200	
	MCR220-5		300	
	2N6397		400	
	MCR220-7		500	
	2N6398		600	
	MCR220-9		700	
	2N6399		800	
RMS On-State Current (T_C = 90°C) (All Conduction Angles)		$I_{T(RMS)}$	12	Amps
Peak Non-Repetitive Surge Current (1/2 cycle, Sine Wave, 60 Hz, T_J = 125°C)		I_{TSM}	100	Amps
Circuit Fusing (T_J = −40 to +125°C, t = 1 to 8.3 ms)		I^2t	40	A^2s
Forward Peak Power		P_{GM}	20	Watts
Forward Average Gate Power		$P_{G(AV)}$	0.5	Watt

Rating	Symbol	Value	Unit
Forward Peak Gate Current	I_{GM}	2	Amps
Operating Junction Temperature Range	T_J	−40 to +125	°C
Storage Temperature Range	T_{stg}	−40 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM}) T_J = 25°C	I_{DRM}, I_{RRM}	—	—	10	μA
T_J = 125°C		—	—	2	mA
*Forward "On" Voltage (I_{TM} = 24 A Peak)	V_{TM}	—	1.7	2.2	Volts
*Gate Trigger Current (Continuous dc) (V_D = 12 Vdc, R_L = 100 Ohms)	I_{GT}	—	5	30	mA
*Gate Trigger Voltage (Continuous dc) (V_D = 12 Vdc, R_L = 100 Ohms)	V_{GT}	—	0.7	1.5	Volts
(V_D = Rated V_{DRM}, R_L = 100 Ohms, T_J = 125°C)	V_{GD}	0.2	—	—	
*Holding Current (V_D = 12 Vdc)	I_H	—	6	40	mA
Turn-On Time (I_{TM} = 12 A, I_{GT} = 40 mAdc, V_D = Rated V_{DRM})	t_{gt}	—	1	2	μs
Turn-Off Time (V_D = Rated V_{DRM}) (I_{TM} = 12 A, I_R = 12 A)	t_q	—	15	—	μs
(I_{TM} = 12 A, I_R = 12 A, T_J = 125°C)		—	35	—	
Critical Rate-of-Rise of Off-State Voltage Exponential (V_D = Rated V_{DRM}, T_J = 125°C)	dv/dt	—	50	—	V/μs

Quality Semi-Conductors