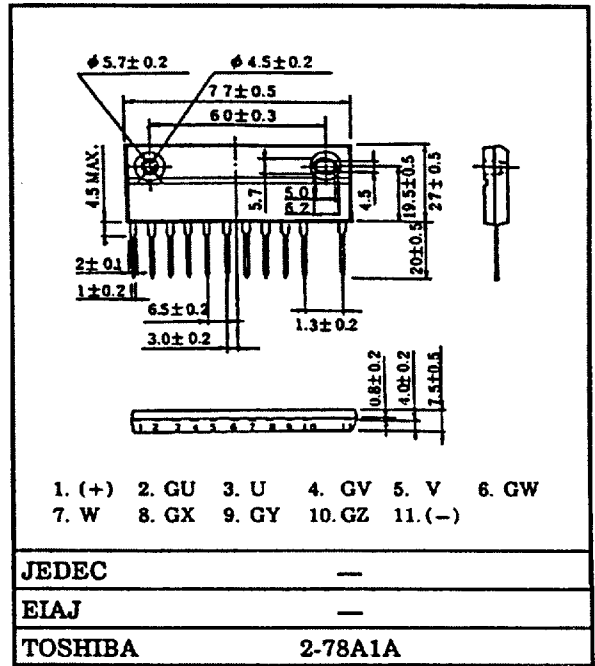


Unit in mm

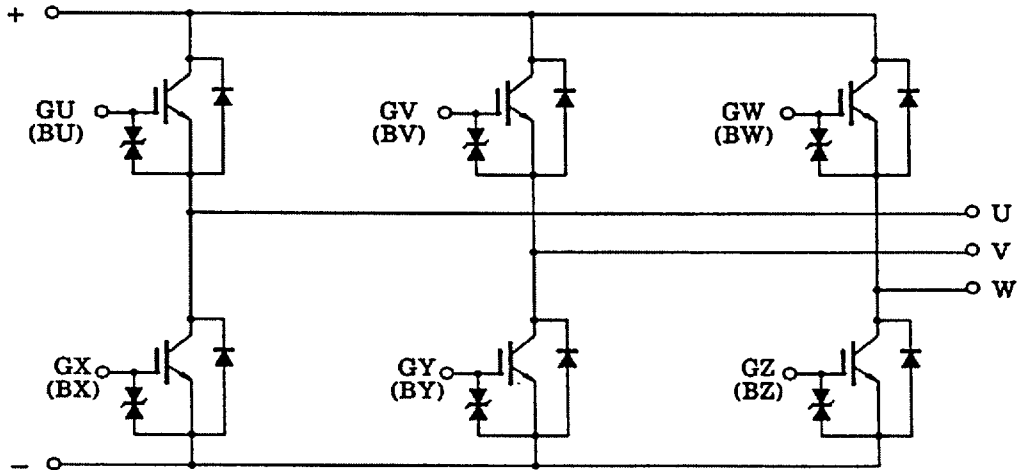
### High Power Switching Applications

#### Motor Control Applications

- The Electrodes are Isolated from Case.
- 6 IGBTs are Built Into 1 Package.
- Enhancement-Mode
- Low Saturation Voltage
  - :  $V_{CE(sat)} = 2.7V$  (Max.) ( $I_C = 20A$ )
- High Speed
  - :  $t_f = 1.0\mu s$  (Max.) ( $I_C = 20A$ )
  - :  $t_{rr} = 0.15\mu s$  (Max.) ( $I_F = 20A$ )



### Equivalent Circuit

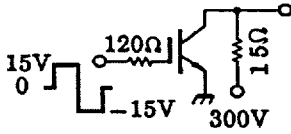


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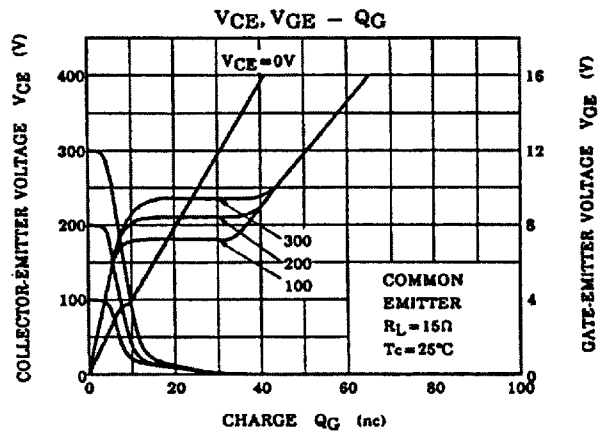
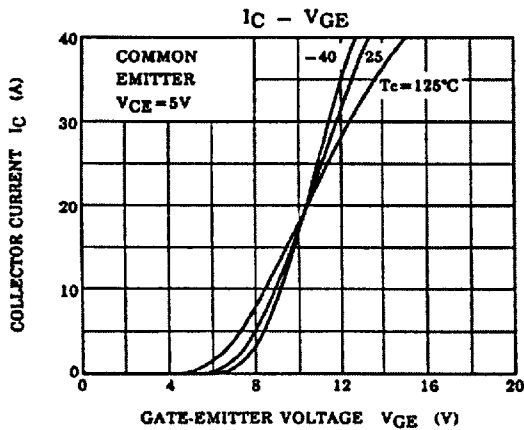
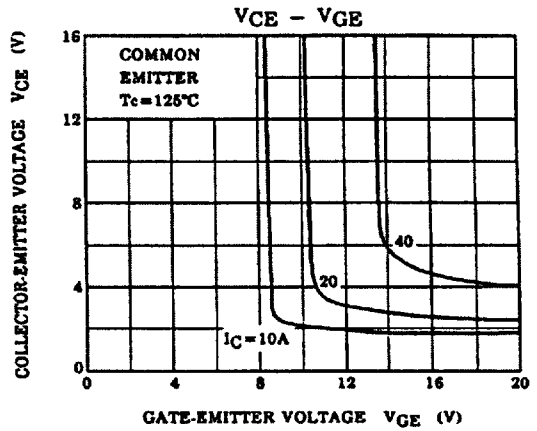
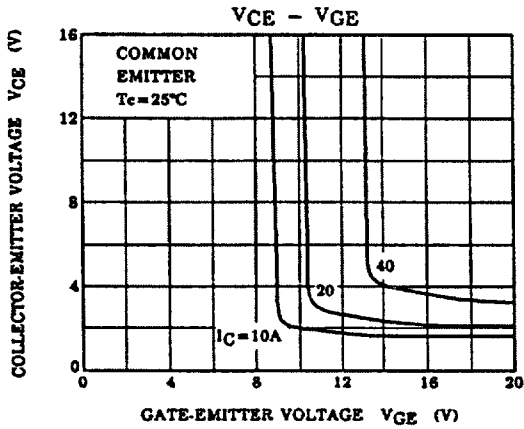
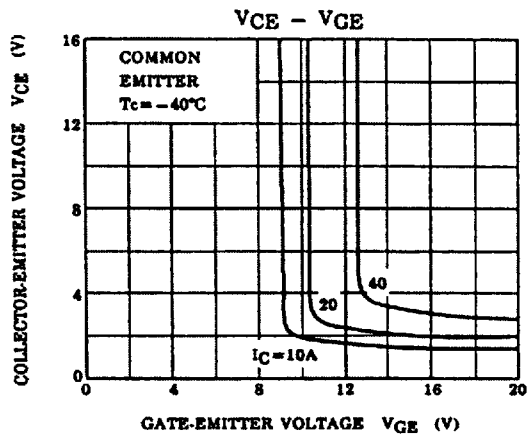
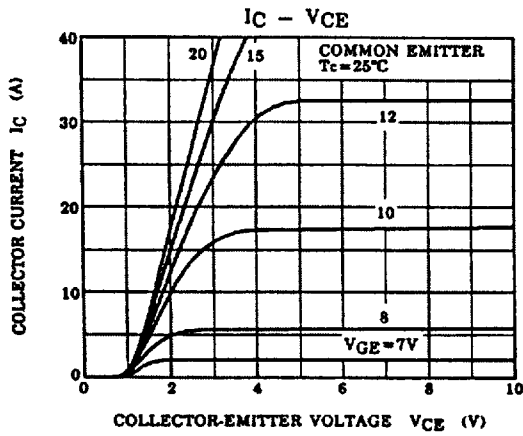
## Maximum Ratings (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		V <sub>CES</sub>	600	V
Gate-Emitter Voltage		V <sub>GES</sub>	±20	V
Collector Current	DC	I <sub>C</sub>	20	A
	1ms	I <sub>CP</sub>	40	
Forward Current	DC	I <sub>F</sub>	20	A
	1ms	I <sub>FM</sub>	40	
Collector Power Dissipation (Tc = 25°C)		P <sub>C</sub>	60	W
Junction Temperature		T <sub>j</sub>	150	°C
Storage Temperature Range		T <sub>stg</sub>	-40 ~ 125	°C
Isolation Voltage		V <sub>isol</sub>	2500 (AC 1 minute)	V
Screw Torque		—	1.5	N•m

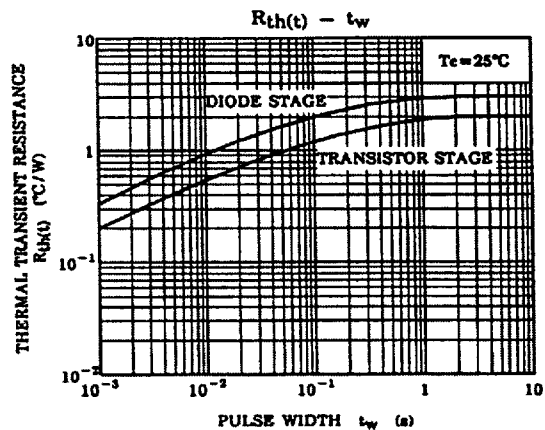
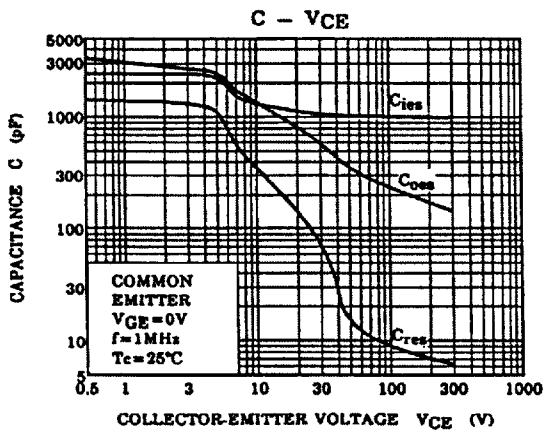
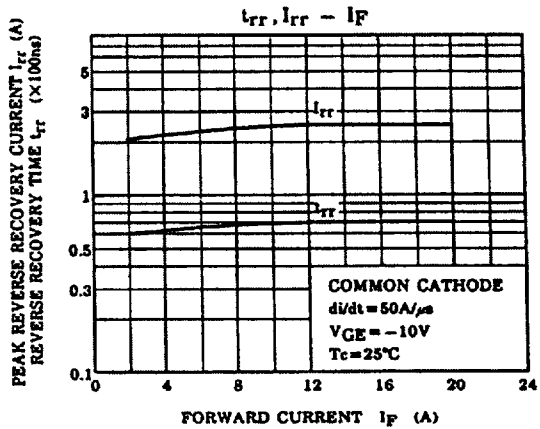
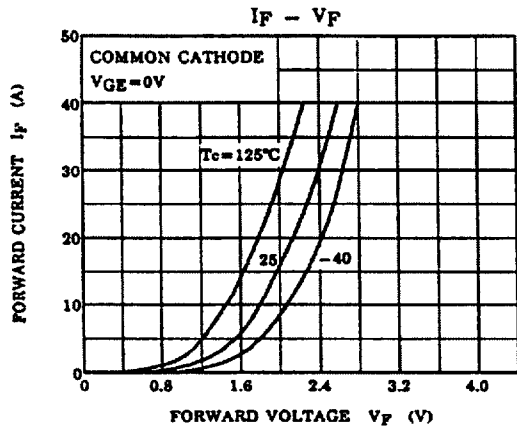
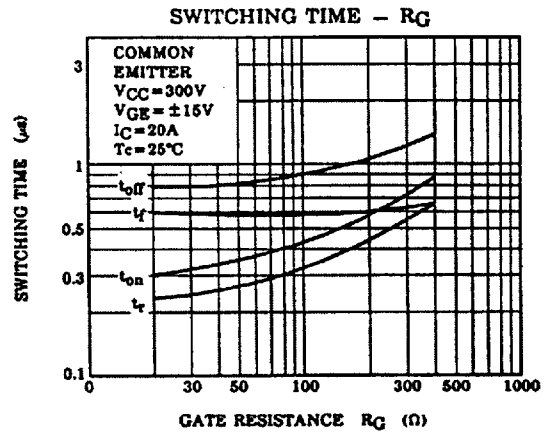
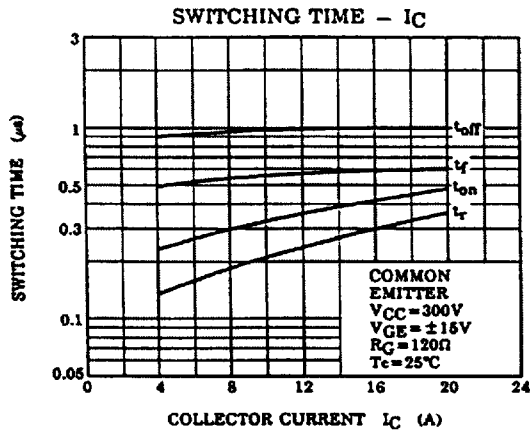
## Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT
Gate Leakage Current		I <sub>GES</sub>	V <sub>GE</sub> = ±20V, V <sub>CE</sub> = 0	—	—	±20	μA
Collector Cut-off Current		I <sub>CES</sub>	V <sub>CE</sub> = 600V, V <sub>GE</sub> = 0	—	—	1.0	mA
Collector-Emitter Breakdown Voltage		V <sub>(BR)CES</sub>	I <sub>C</sub> = 10mA, V <sub>GE</sub> = 0	600	—	—	V
Gate-Emitter Cut-off Voltage		V <sub>GE(OFF)</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 20mA	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> = 20A, V <sub>GE</sub> = 15V	—	2.3	2.8	V
Input Capacitance		C <sub>ies</sub>	V <sub>CE</sub> = 10V, V <sub>GE</sub> = 0, f = 1MHz	—	1300	—	pF
Switching Time	Rise Time	t <sub>r</sub>		—	0.3	0.6	μs
	Turn-on Time	t <sub>on</sub>		—	0.4	0.8	
	Fall Time	t <sub>f</sub>		—	0.6	1.0	
	Turn-off Time	t <sub>off</sub>		—	1.0	1.6	
Forward Voltage		V <sub>F</sub>	I <sub>F</sub> = 15A, V <sub>GE</sub> = 0	—	1.7	2.5	V
Reverse Recovery Time		t <sub>rr</sub>	I <sub>F</sub> = 20A, V <sub>GE</sub> = -10V di/dt = 50A/μs	—	0.08	0.15	μs
Thermal Resistance		R <sub>th(j-c)</sub>	Transistor	—	—	2.08	°C/W
			Diode	—	—	3.09	

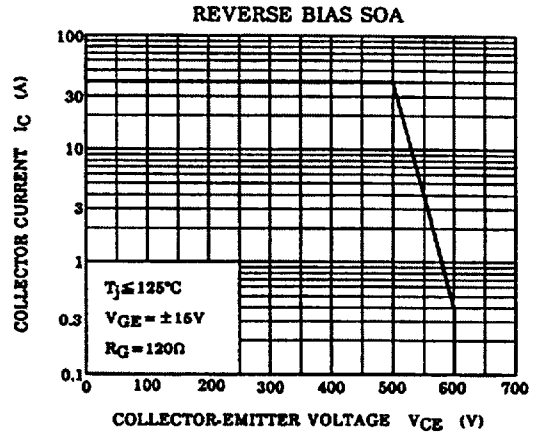
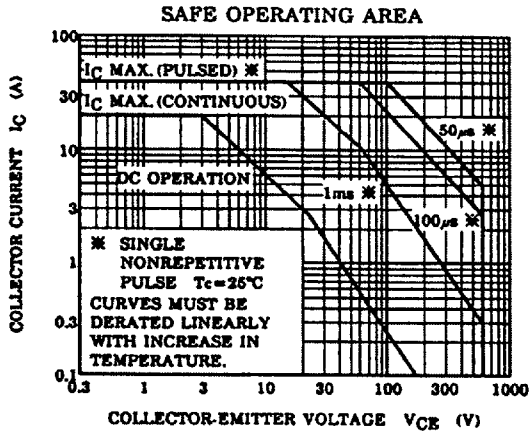
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