

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

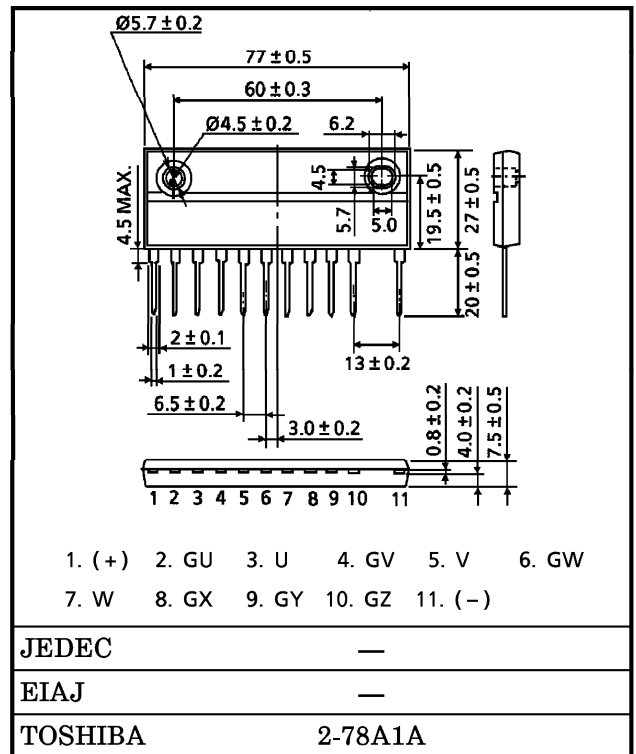
MP6752

HIGH POWER SWITCHING APPLICATIONS

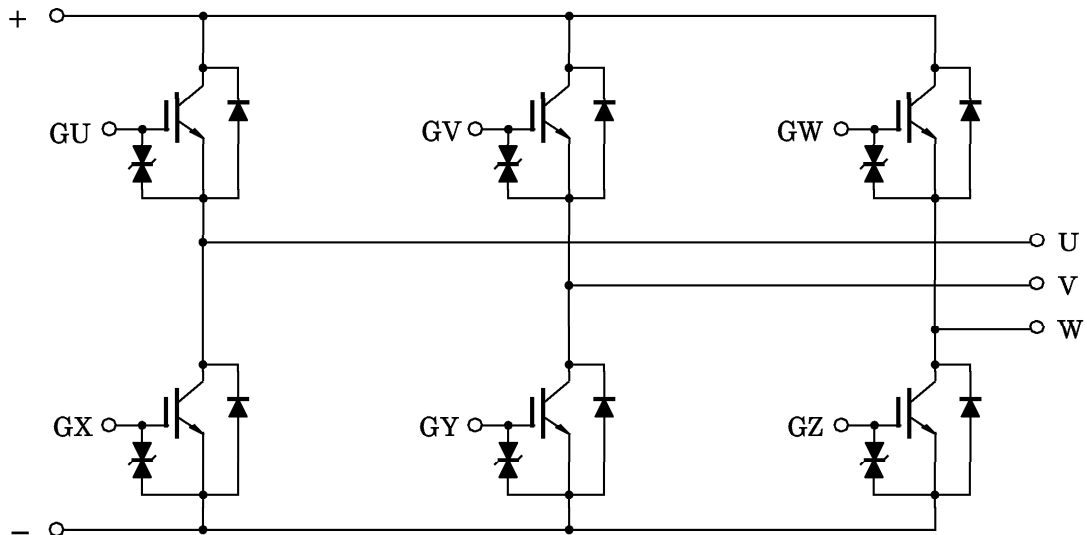
Unit in mm

MOTOR CONTROL APPLICATIONS

- The Electrodes are Isolated from Case.
- 6 IGBTs are Built Into 1 Package.
- Enhancement-Mode
- Low Saturation Voltage
: $V_{CE(sat)} = 4.0V$ (Max.) ($I_C = 20A$)
- High Speed : $t_f = 0.35\mu s$ (Max.) ($I_C = 20A$)
 $t_{rr} = 0.15\mu s$ (Max.) ($I_F = 20A$)



EQUIVALENT CIRCUIT

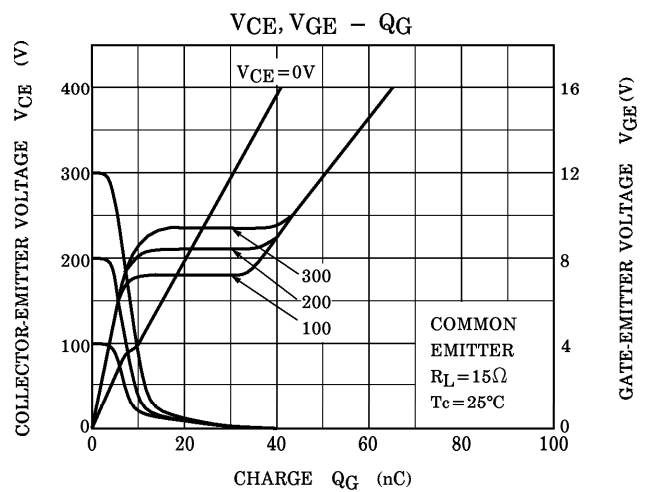
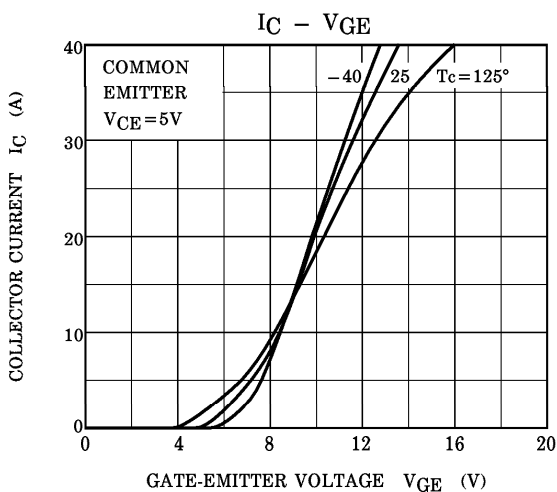
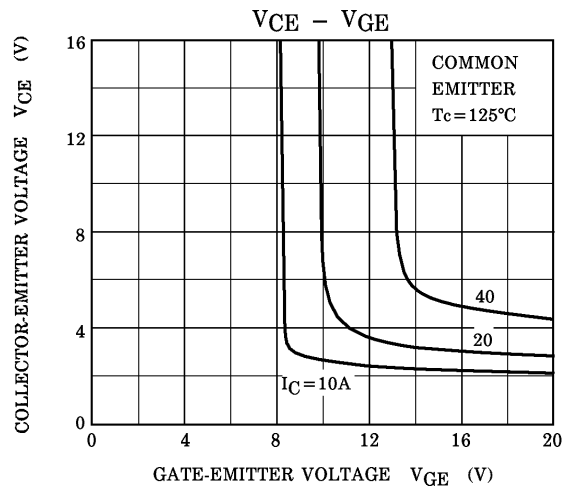
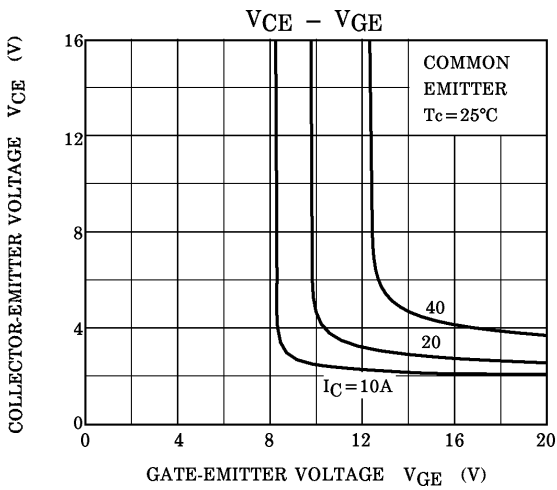
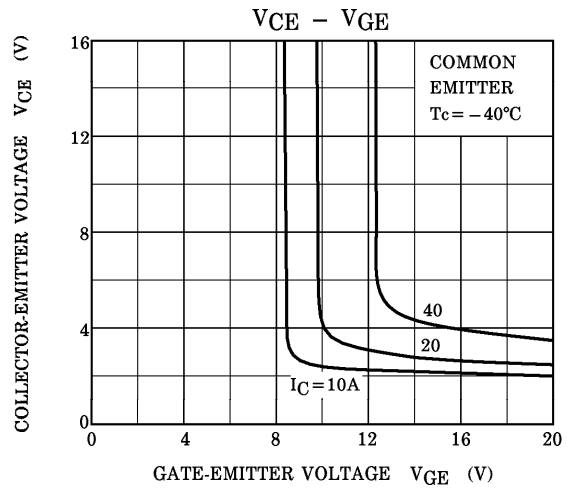
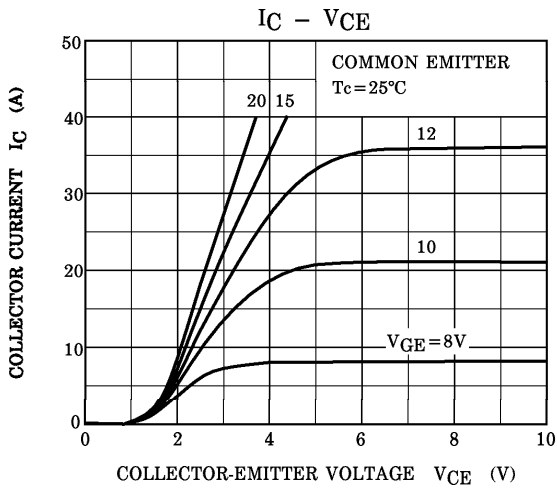


MAXIMUM RATINGS (Ta = 25°C)

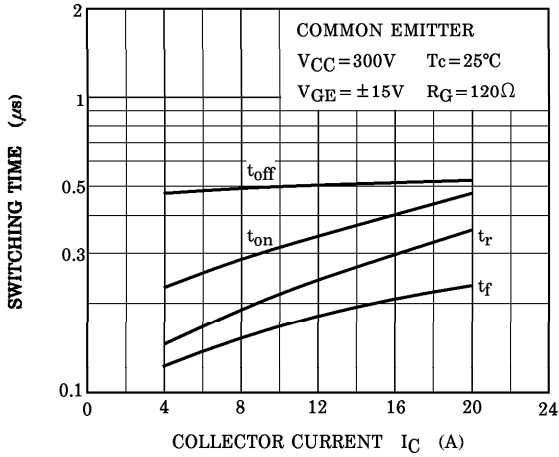
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V _{CE} S	600	V
Gate-Emitter Voltage		V _{GE} S	±20	V
Collector Current	DC	I _C	20	A
	1ms	I _{CP}	40	
Forward Current	DC	I _F	20	A
	1ms	I _{FM}	40	
Collector Power Dissipation (T _c =25°C)		P _C	60	W
Junction Temperature		T _j	150	°C
Storage Temperature Range		T _{stg}	-40~125	°C
Isolation Voltage		V _{Isol}	2500 (AC 1 minute)	V
Screw Torque		—	1.5	N·m

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

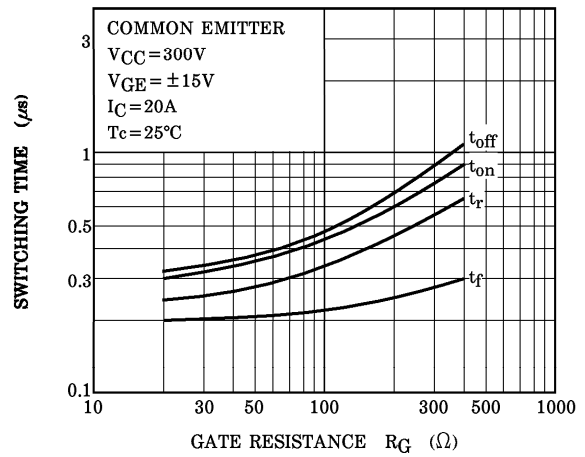
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I _{GES}	V _{GE} = ±20V, V _{CE} = 0	—	—	±20	μA
Collector Cut-off Current		I _{CE} S	V _{CE} = 600V, V _{GE} = 0	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		V _{GE} (off)	I _C = 20mA, V _{CE} = 5V	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		V _{CE} (sat)	I _C = 20A, V _{GE} = 15V	—	3.0	4.0	V
Input Capacitance		C _{ies}	V _{CE} = 10V, V _{GE} = 0, f = 1MHz	—	1300	—	pF
Switching Time	Rise Time	t _r		—	0.3	0.6	μs
	Turn-on Time	t _{on}		—	0.4	0.8	
	Fall Time	t _f		—	0.2	0.35	
	Turn-off Time	t _{off}		—	0.5	1.0	
Forward Voltage		V _F	I _F = 20A, V _{GE} = 0	—	1.7	2.5	V
Reverse Recovery Time		t _{rr}	I _F = 20A, V _{GE} = -10V di / dt = 50A / μs	—	0.08	0.15	μs
Thermal Resistance		R _{th(j-c)}	Transistor	—	—	2.08	°C / W
			Diode	—	—	3.09	



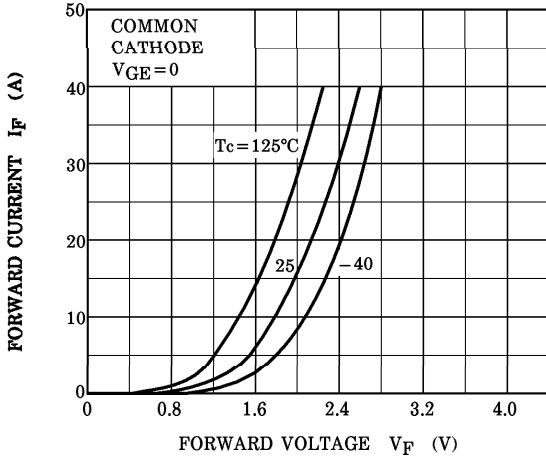
SWITCHING TIME - I_C



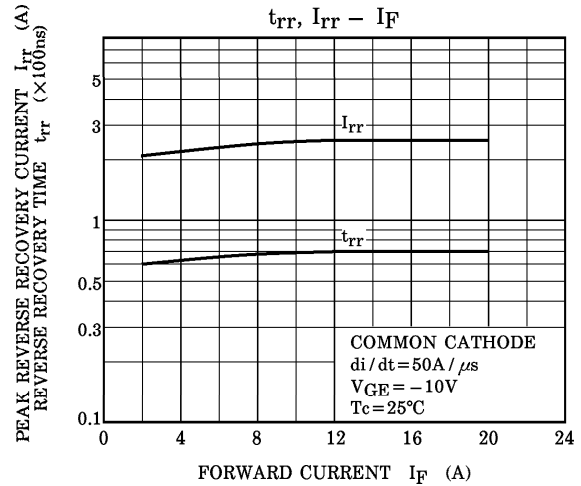
SWITCHING TIME - R_G



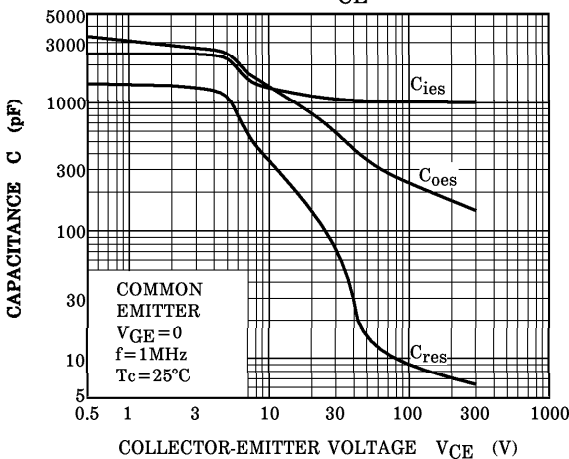
$I_F - V_F$



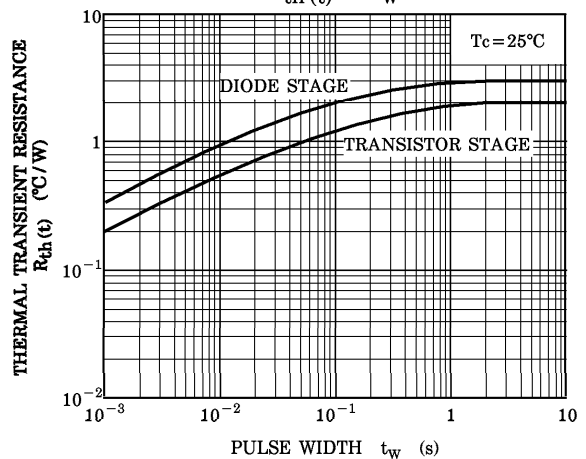
$t_{rr}, I_{rr} - I_F$

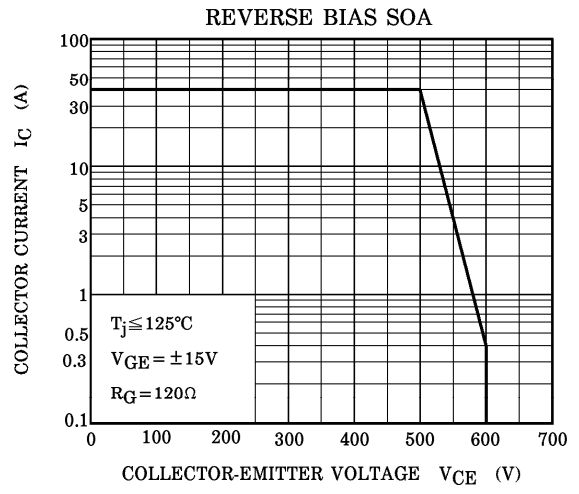
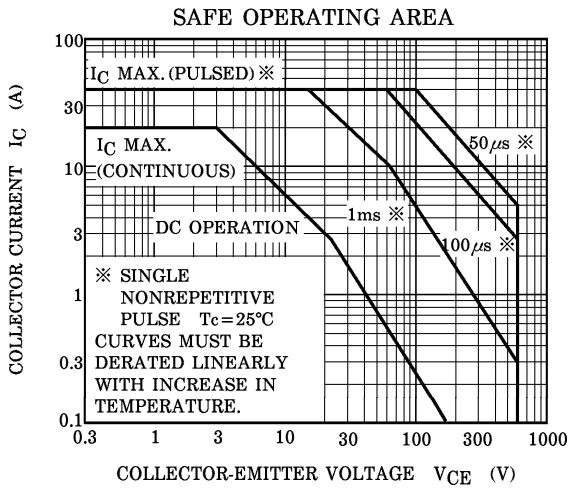


$C - V_{CE}$



$R_{th}(t) - t_w$





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