TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

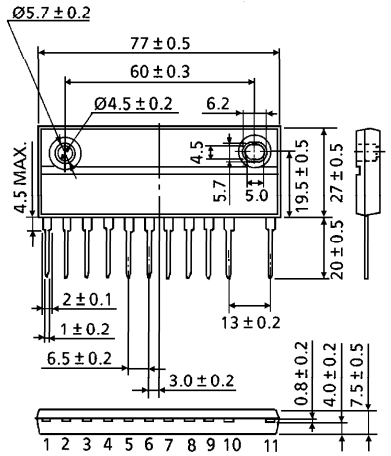
MP6757

HIGH POWER SWITCHING APPLICATIONS

MOTOR CONTROL APPLICATIONS

- The electrodes are isolated from case.
- 6 IGBTs are 6 free wheeling diodes are built into 1 package.
- Enhancement-mode
- High speed : $t_f = 0.35\ \mu s$ (Max.) ($I_C = 25$ A)
  : $t_{rr} = 0.15\ \mu s$ (Max.) ($I_F = 25$ A)

Unit in mm

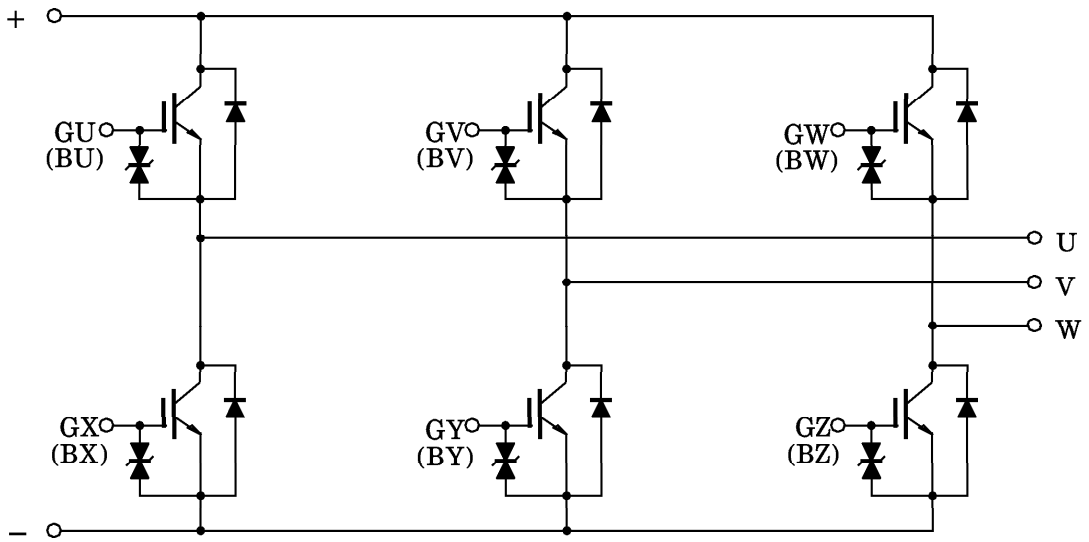


1. (+) 2. GU 3. U 4. GV 5. V 6. GW
7. W 8. GX 9. GY 10. GZ 11. (−)

JEDEC	—
EIAJ	—
TOSHIBA	2-78A1A

Weight : 44 g

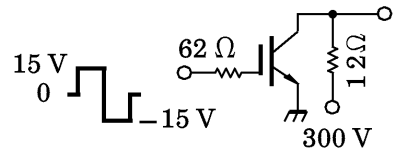
EQUIVALENT CIRCUIT



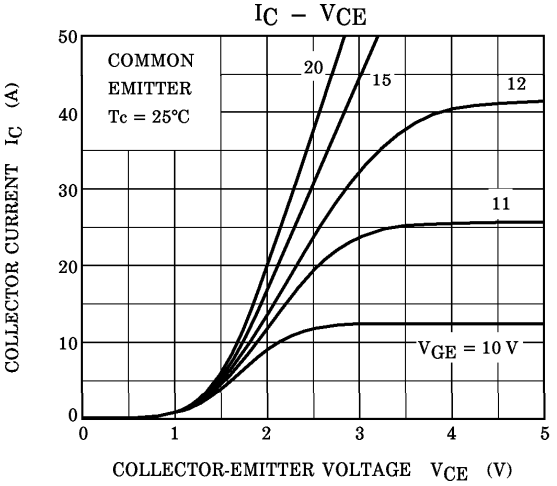
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	±20	V
Collector Current	DC	I_C	25	A
	1 ms	I_{CP}	50	
Forward Current	DC	I_F	25	A
	1 ms	I_{FM}	50	
Collector Power Dissipation (Tc = 25°C)		P_C	72	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−40 to 125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 minute)	V
Screw Torque		—	1.5	N·m

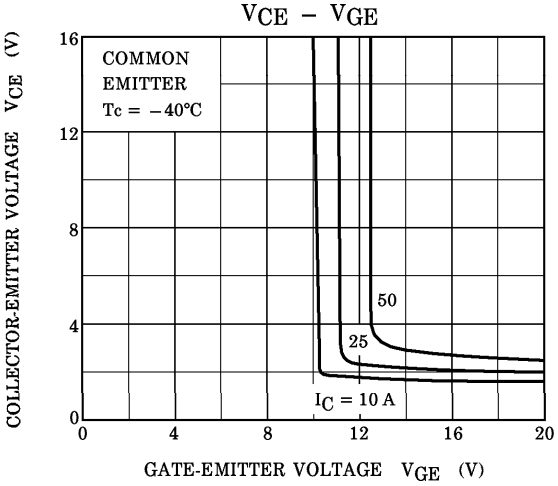
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	V_{GE} = ±20 V, V_{CE} = 0	—	—	±20	μA
Collector Cut-off Current		I_{CES}	V_{CE} = 600 V, V_{GE} = 0	—	—	1.0	mA
Collector-Emitter Voltage		V_{CES}	I_C = 10 mA, V_{GE} = 0	600	—	—	V
Gate-Emitter Cut-off Voltage		$V_{GE\ (off)}$	V_{CE} = 5 V, I_C = 25 mA	5.6	—	8.6	V
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 25 A, V_{GE} = 15 V	—	2.6	3.1	V
Input Capacitance		C_{ies}	V_{CE} = 10 V, V_{GE} = 0, f = 1 MHz	—	1200	—	pF
Switching Time	Rise Time	t_r		—	0.3	0.6	μs
	Turn-on Time	t_{on}		—	0.6	1.0	
	Fall Time	t_f		—	0.2	0.35	
	Turn-off Time	t_{off}		—	0.4	0.7	
Forward Voltage		V_F	I_F = 25 A, V_{GE} = 0	—	2.1	3.2	V
Reverse Recovery Time		t_{rr}	I_F = 25 A, V_{GE} = −10 V, di / dt = 100 A / μs	—	0.08	0.15	μs
Thermal Resistance		$R_{th\ (j\text{-}c)}$	Transistor	—	—	1.73	°C / W
			Diode	—	—	2.35	

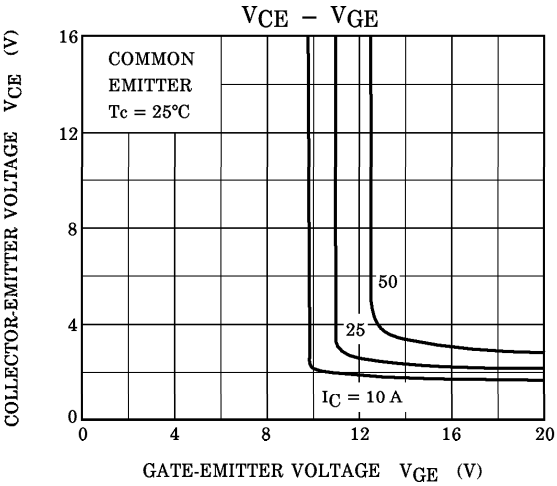
$I_C - V_{CE}$



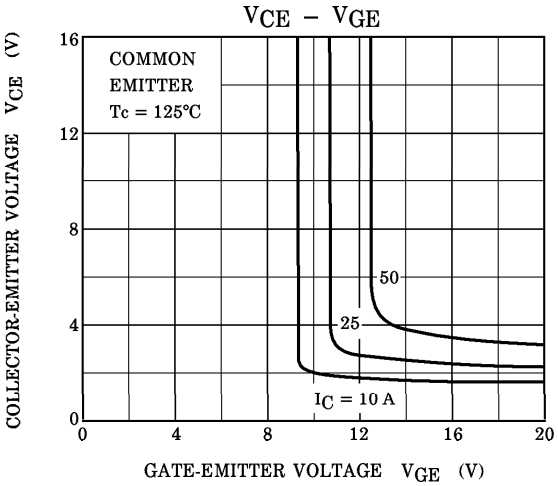
$V_{CE} - V_{GE}$



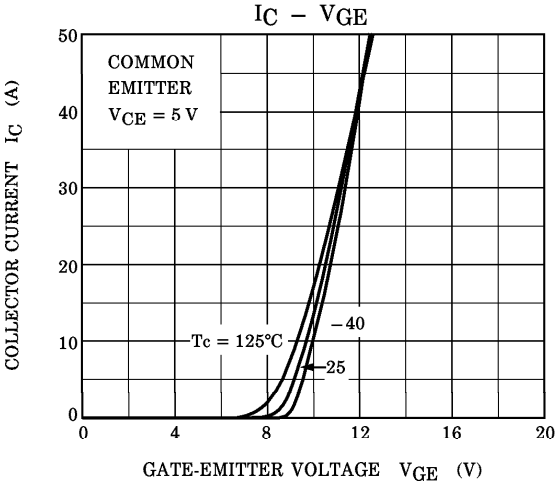
$V_{CE} - V_{GE}$



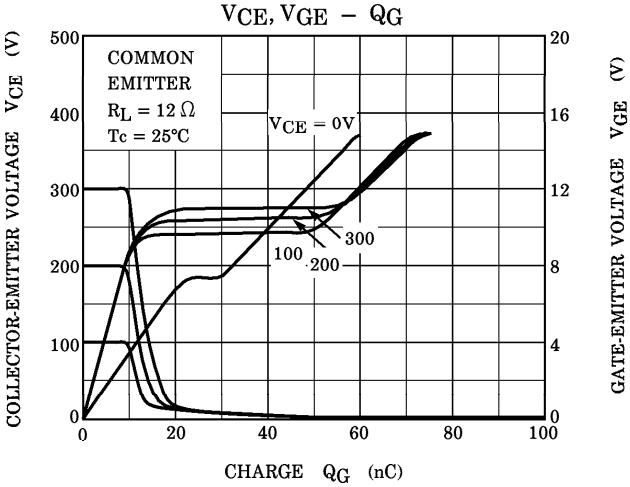
$V_{CE} - V_{GE}$



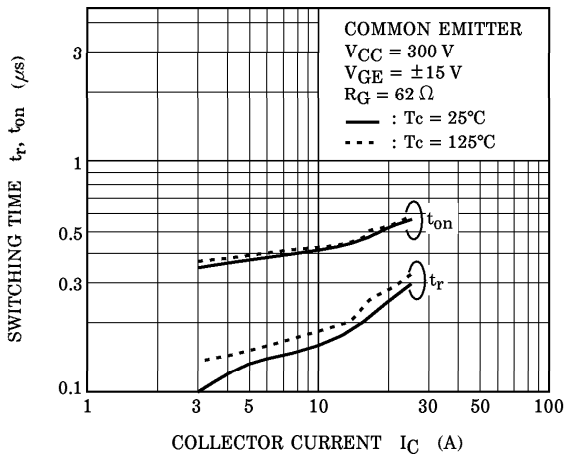
$I_C - V_{GE}$



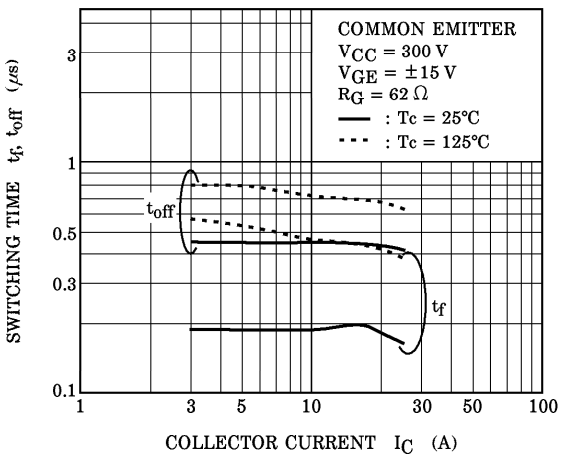
$V_{CE}, V_{GE} - Q_G$



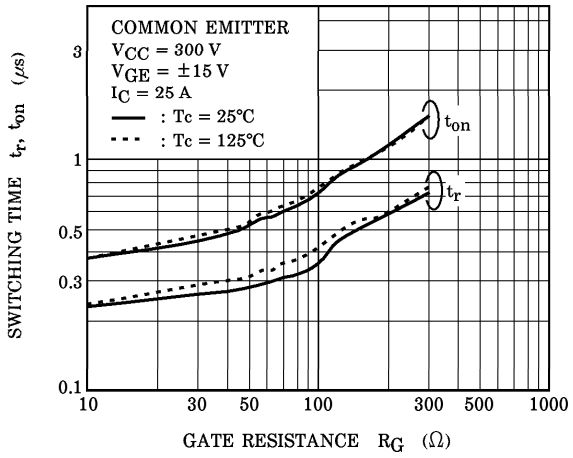
t_r, t_{on} – I_C



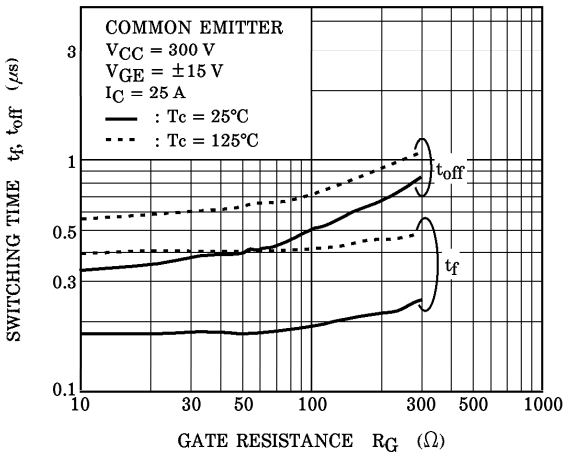
t_f, t_{off} – I_C



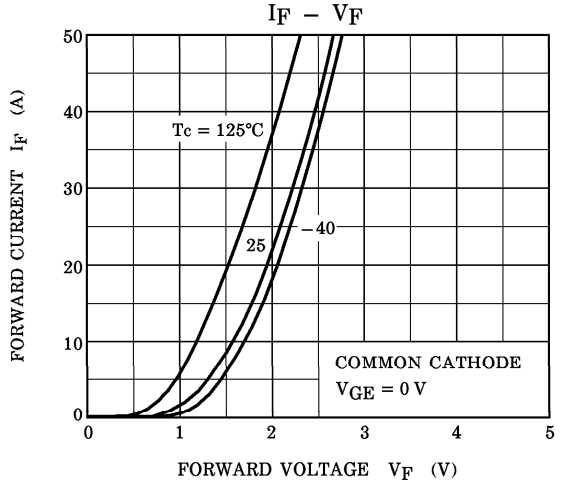
t_r, t_{on} – R_G



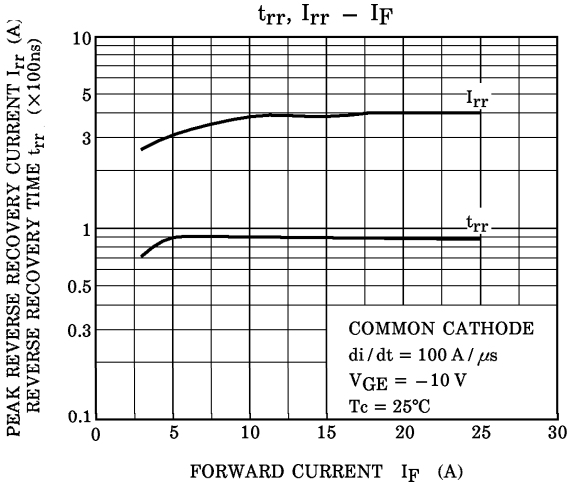
t_f, t_{off} – R_G



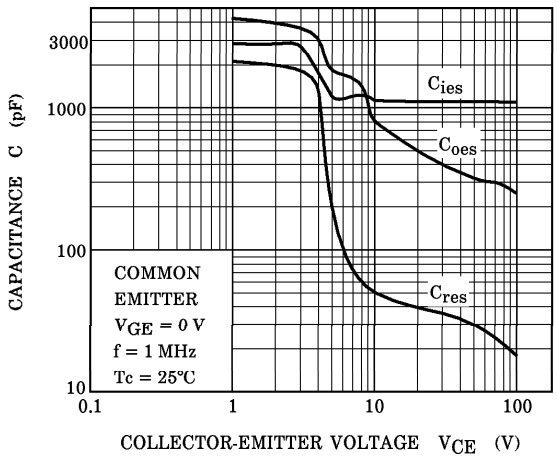
I_F – V_F



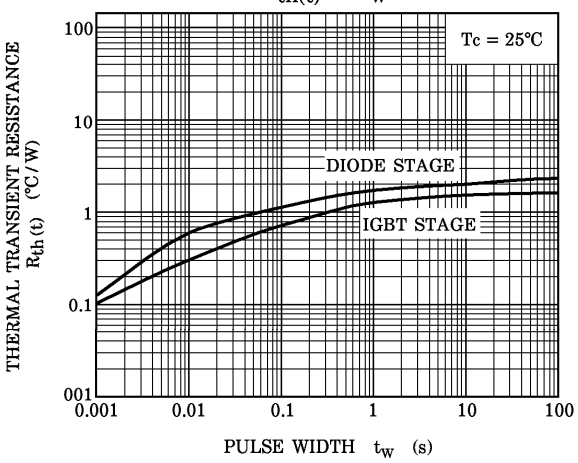
t_{rr}, I_{rr} – I_F



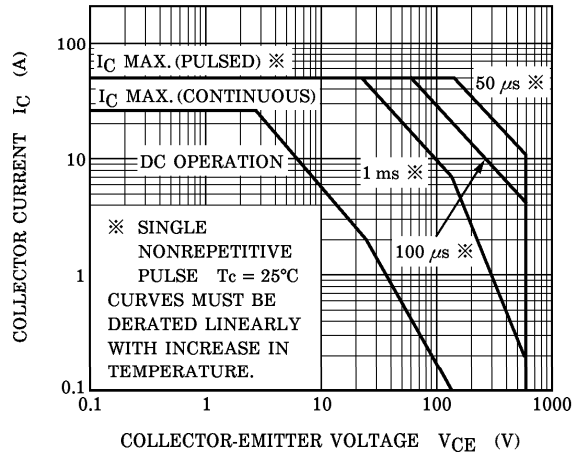
C – V_{CE}



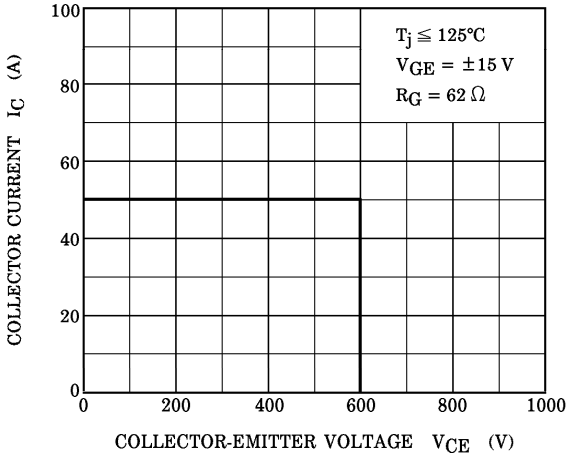
$R_{th(t)}$ – t_w



SAFE OPERATING AREA



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