TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

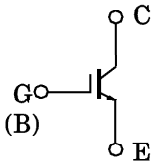
MG150J1BS11

HIGH POWER SWITCHING APPLICATIONS

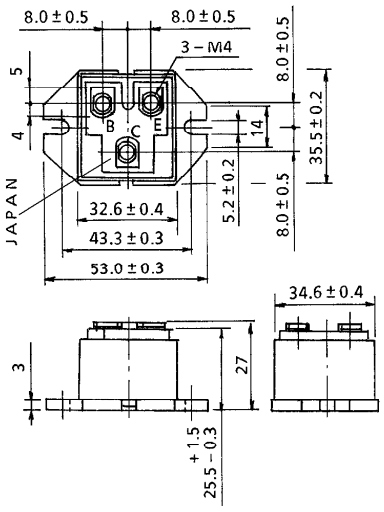
MOTOR CONTROL APPLICATIONS

- High Input Impedance
- High Speed : $t_f = 1.0\mu s$ (Max.) ($I_C = 150A$)
- Low Saturation Voltage : $V_{CE\,(sat)} = 2.7V$ (Max.) ($I_C = 150A$)
- Enhancement-Mode
- The Electrodes are Isolated from Case.

EQUIVALENT CIRCUIT



Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-33F1A

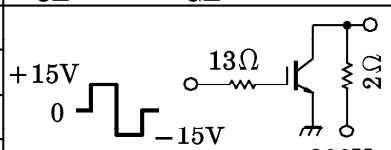
Weight : 86g

MAXIMUM RATINGS (Ta = 25°C)

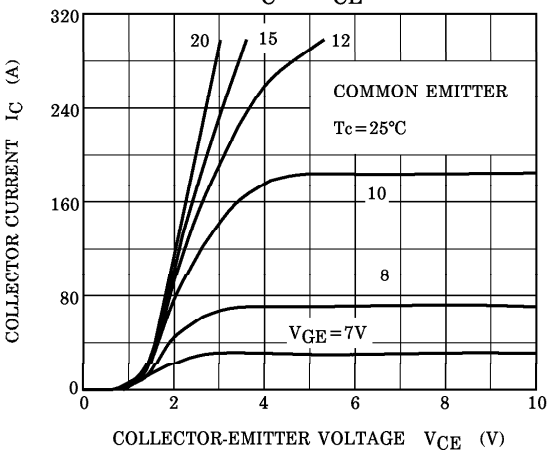
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	±20	V
Collector Current	DC	I_C	150	A
	1ms	I_{CP}	300	
Collector Power Dissipation		P_C	450	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−40~125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 minute)	V
Screw Torque (Terminal / Mounting)		—	2 / 3	N·m

961001EAA1

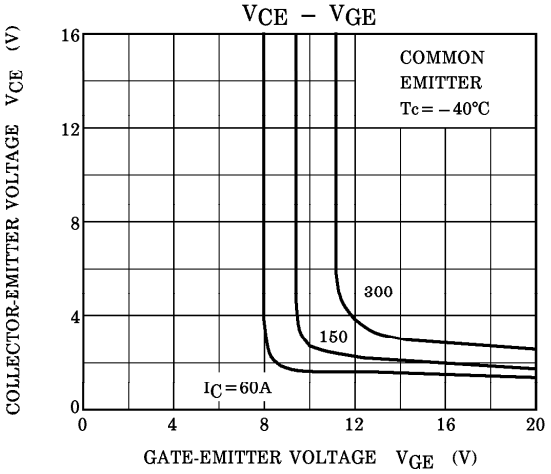
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 20V$, $V_{CE} = 0$	—	—	±500	nA
Collector Cut-Off Current		I_{CES}	$V_{CE} = 600V$, $V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-Off Voltage		$V_{GE\ (off)}$	$V_{CE} = 5V$, $I_C = 150mA$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	$I_C = 150A$, $V_{GE} = 15V$	—	2.3	2.7	V
Input Capacitance		C_{ies}	$V_{CE} = 10V$, $V_{GE} = 0$, f = 1MHz	—	12000	—	pF
Switching Time	Rise Time	t_r		—	0.3	0.8	μs
	Turn-On Time	t_{on}		—	0.4	1.0	
	Fall Time	t_f		—	0.6	1.0	
	Turn-Off Time	t_{off}		—	1.0	1.6	
Thermal Resistance		$R_{th\ (j-c)}$		—	—	0.278	°C / W

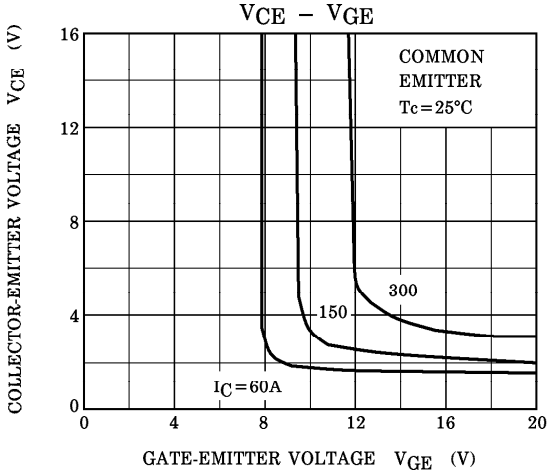
I_C – V_{CE}



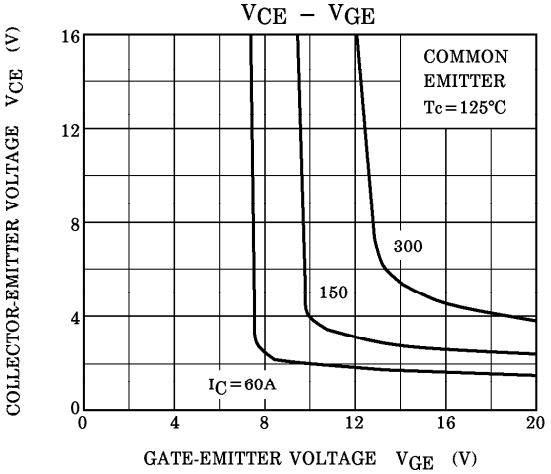
V_{CE} – V_{GE}



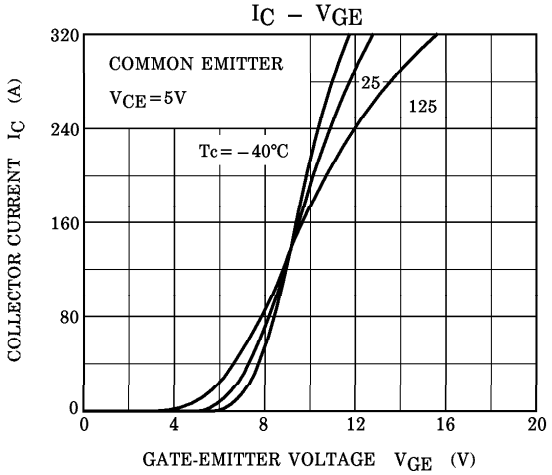
V_{CE} – V_{GE}



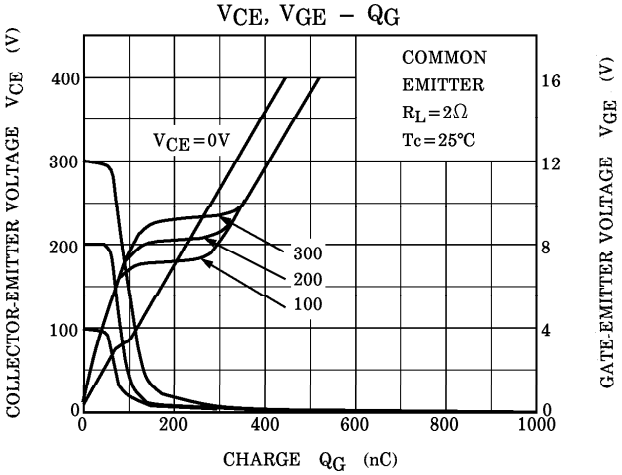
V_{CE} – V_{GE}



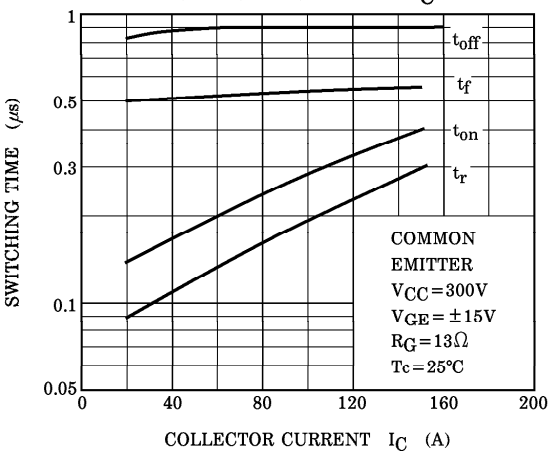
I_C – V_{GE}



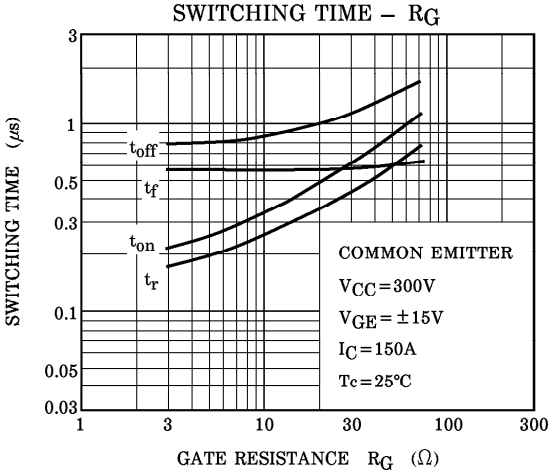
V_{CE}, V_{GE} – Q_G



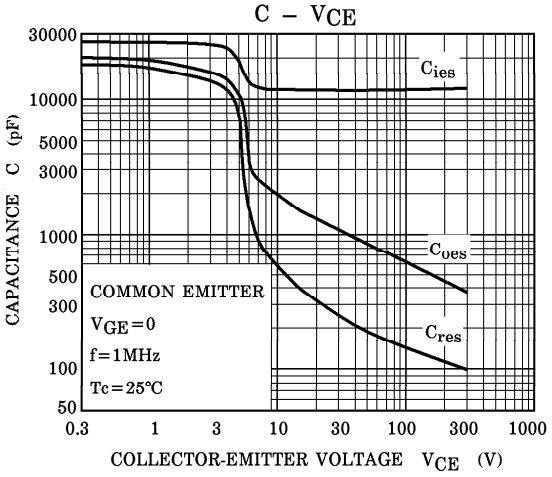
SWITCHING TIME – I_C



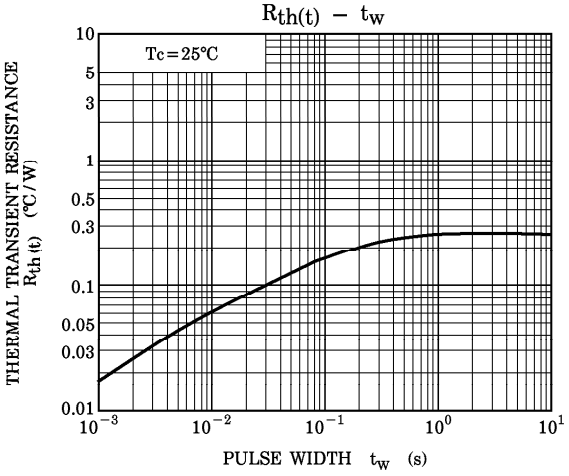
SWITCHING TIME – R_G



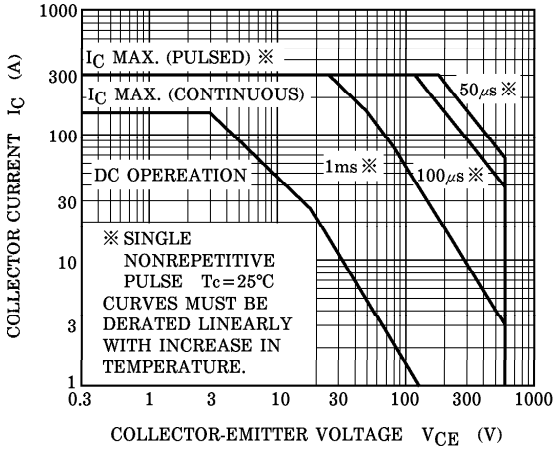
C – V_{CE}



$R_{th(t)}$ – t_w



SAFE OPERATING AREA



REVERSE BIAS SOA