

GTR Module

Silicon N Channel IGBT

High Power Switching Applications

Motor Control Applications

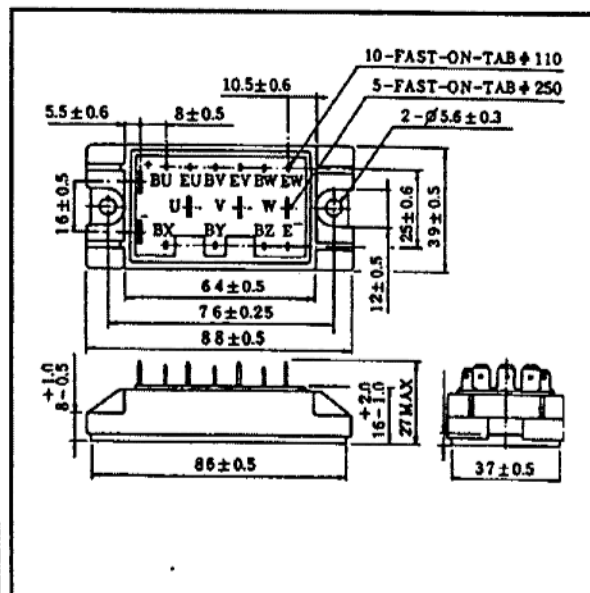
Features

- 6 IGBTs are built into 1 package
- High speed: $t_f = 0.35\mu s$ (Max.) ($I_C = 15A$)
 $t_{rr} = 0.15\mu s$ (Max.) ($I_C = 15A$)
- Low saturation voltage: $V_{CE(sat)} = 3.5V$ (Max.) ($I_F = 15A$)
- Enhancement mode
- The electrodes are isolated from case

Maximum Ratings ($T_c = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CES}	600	V
Gate-Emitter Voltage	V_{GES}	± 20	V
Collector Current	DC	I_C	A
	1ms	I_{CP}	
Forward Current	DC	I_F	A
	1ms	I_{FM}	
Collector Power Dissipation	P_C	80	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-40 ~ 125	$^\circ C$
Isolation Voltage	V_{isol}	2500 (AC 1 Minute)	V
Screw Torque	—	3	N·m

Unit in mm



JEDEC

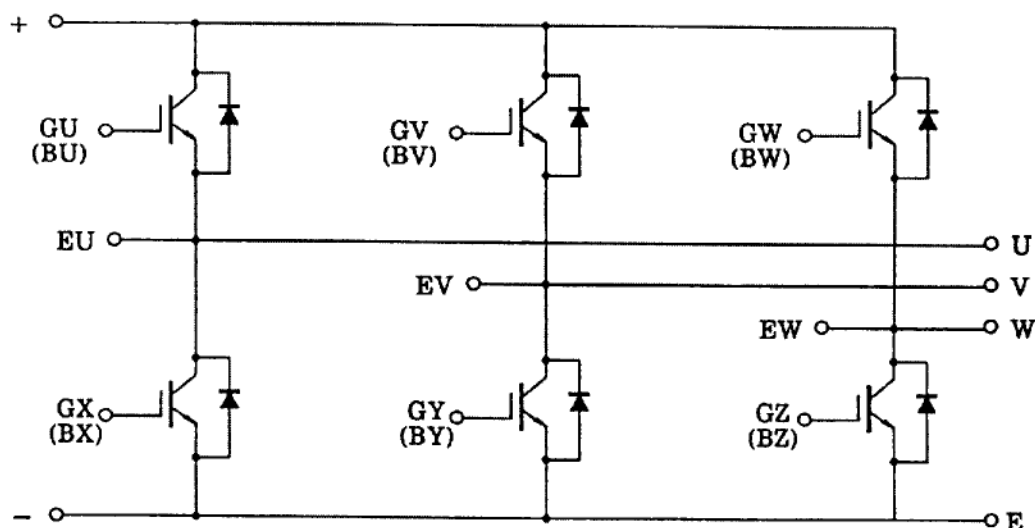
EIAJ

TOSHIBA

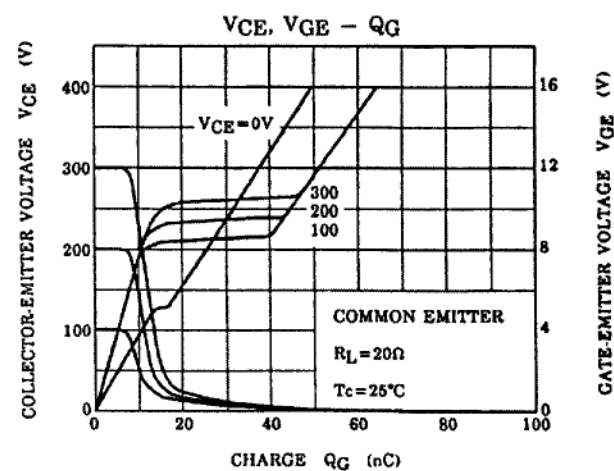
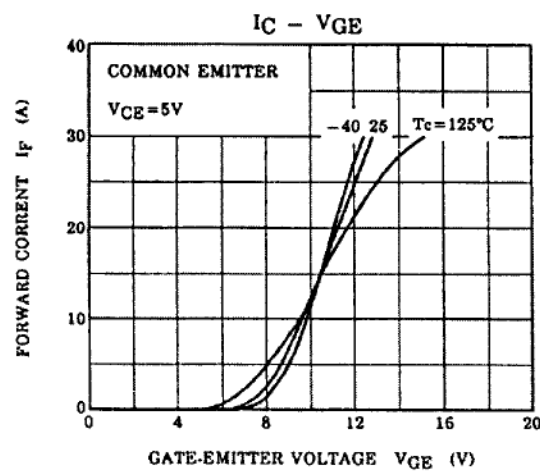
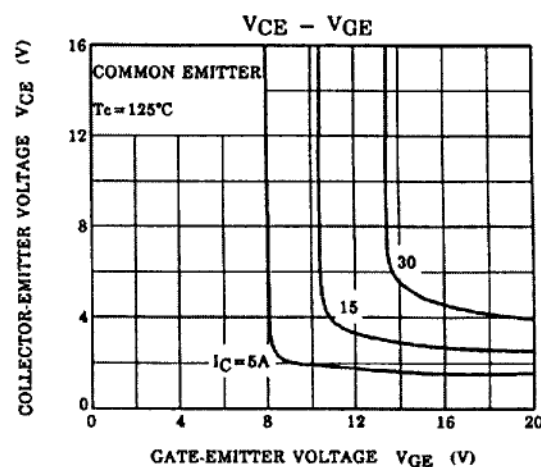
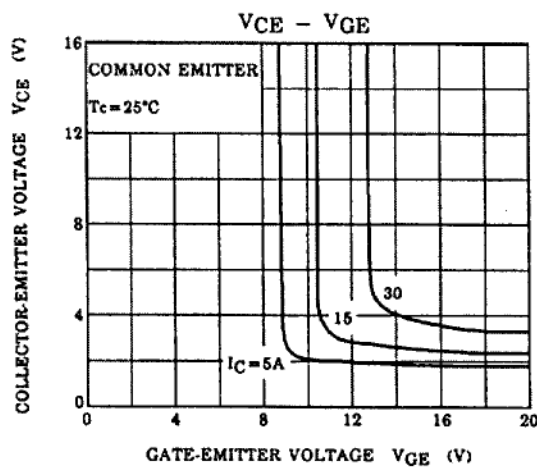
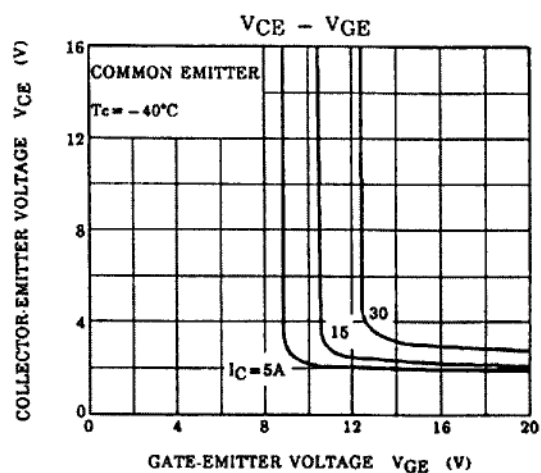
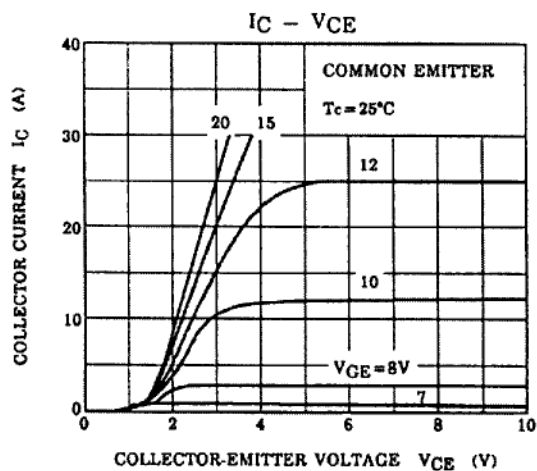
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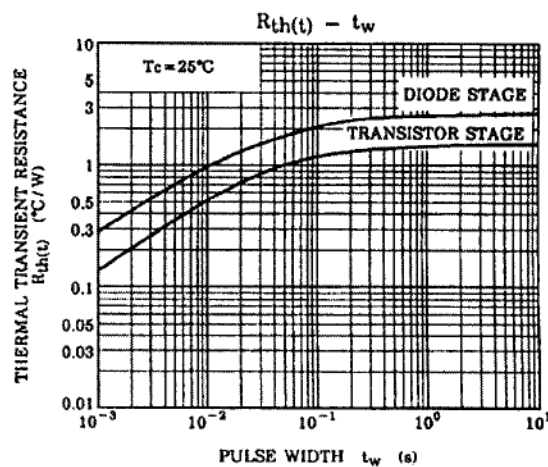
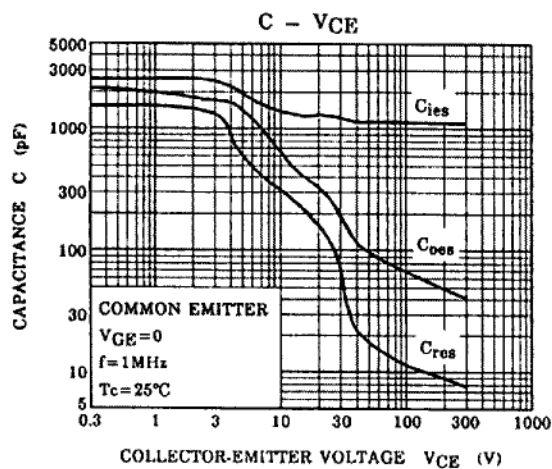
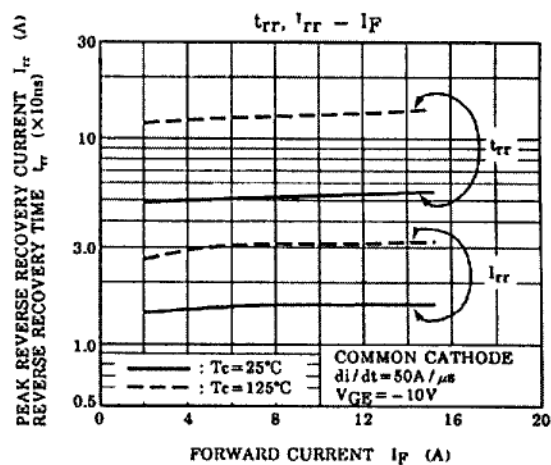
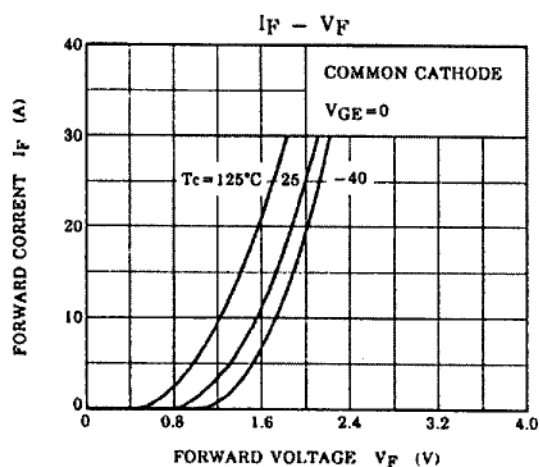
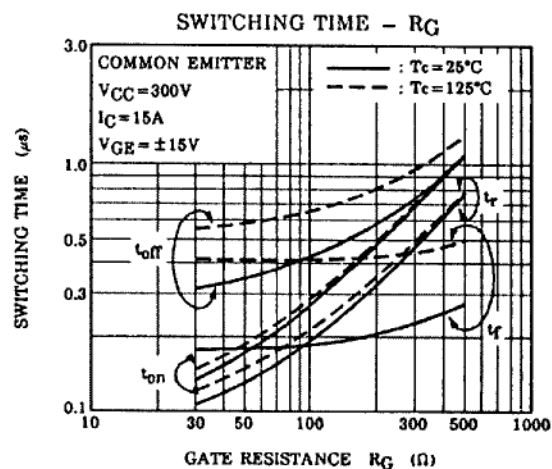
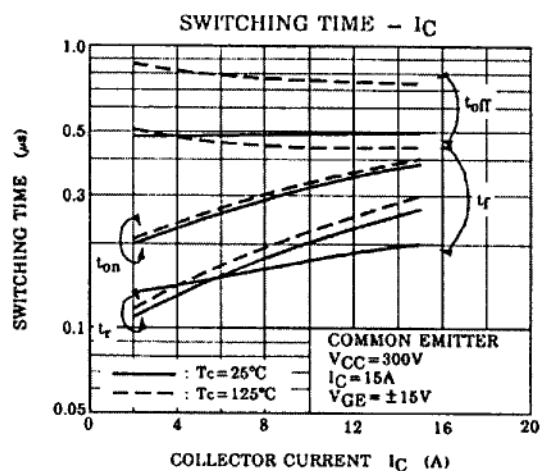
Weight : 152g

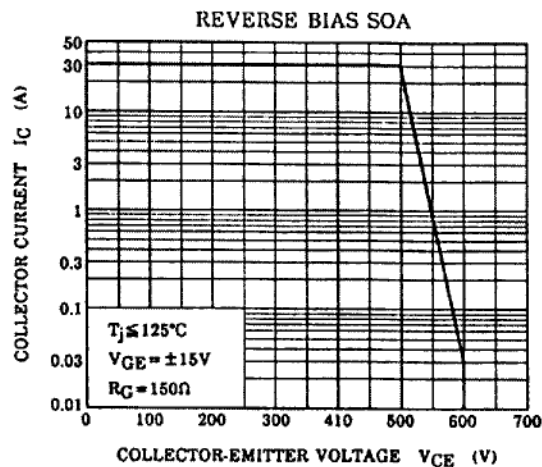
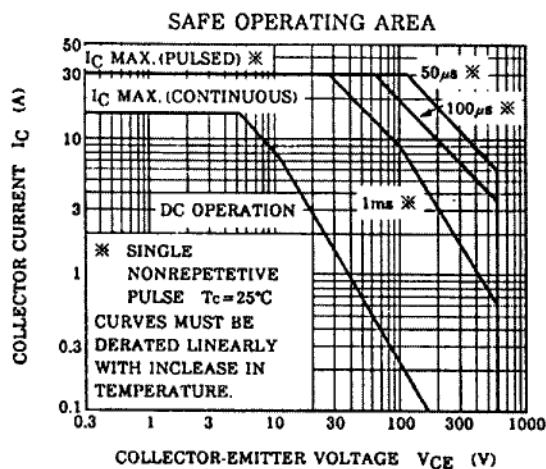
Equivalent Circuit

Electrical Characteristics ($T_c = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 20\text{V}, V_{CE} = 0$	—	—	± 500	nA
Collector Cut-off Current		I_{CES}	$V_{CE} = 600\text{V}, V_{GE} = 0$	—	—	1.0	mA
Collector-Emitter Breakdown Voltage		$V_{(BR) CES}$	$I_C = 10\text{mA}, V_{GE} = 0$	600	—	—	V
Gate-Emitter Cut-off Voltage		$V_{GE (OFF)}$	$I_C = 15\text{mA}, V_{CE} = 5\text{V}$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE (sat)}$	$I_C = 15\text{A}, V_{GE} = 15\text{V}$	—	2.7	3.5	V
Input Capacitance		C_{ies}	$V_{CE} = 10\text{V}, V_{GE} = 0, f = 1\text{MHz}$	—	1400	—	pF
Switching Time	Rise Time	t_r		—	0.30	0.60	μs
	Turn-on Time	t_{on}		—	0.40	0.80	
	Fall Time	t_f		—	0.18	0.35	
	Turn-off Time	t_{off}		—	0.60	1.00	
Forward Voltage		V_F	$I_F = 15\text{A}, V_{GE} = 0$	—	2.0	2.7	V
Reverse Recovery Time		t_{rr}	$I_F = 15\text{A}, V_{GE} = -10\text{V}$ $di/dt = 50\text{A}/\mu\text{s}$	—	0.08	0.15	μs
Thermal Resistance		$R_{th (j-c)}$	Transistor	—	—	1.56	$^\circ\text{C}/\text{W}$
			Diode	—	—	2.80	







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