GTR Module

Silicon N Channel IGBT

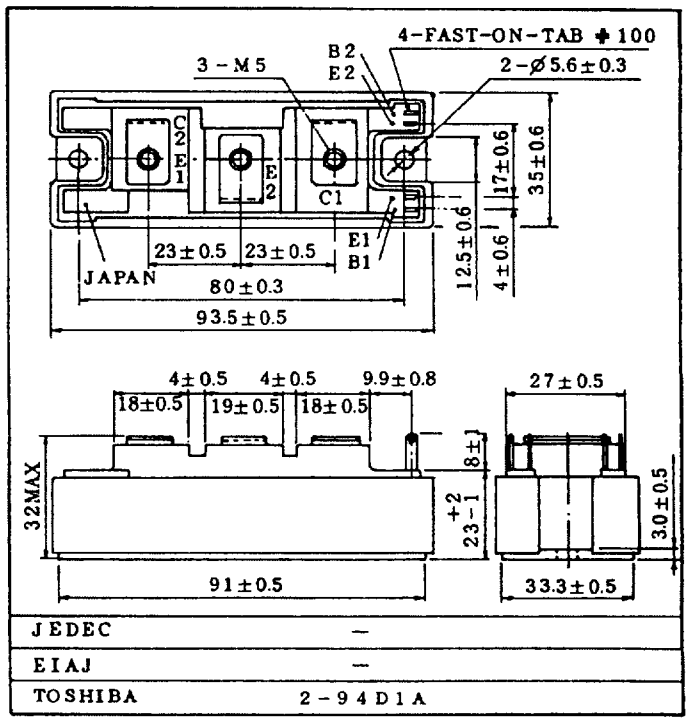
High Power Switching Applications

Motor Control Applications

Features

- High input impedance
- High speed: t_f = 1.0μs (Max.)
  t_{rr} = 0.5μs (Max.)
- Low saturation: $V_{CE\ (sat)}$= 2.7V (Max.)
- Enhancement mode
- The electrodes are isolated from case
- Includes a complete half bridge card in one package

Unit in mm

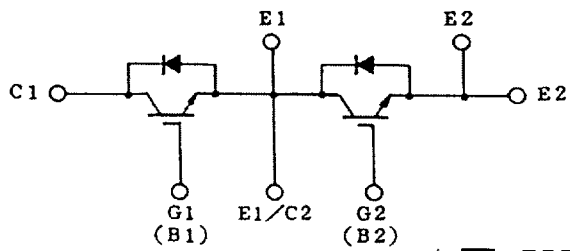


Weight : 202g

Maximum Ratings (Ta = 25°C)

CHARACTERISTICS		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	1200	V
Gate-Emitter Voltage		V_{GES}	±20	V
Collector Current	DC	I_C	50	A
	1ms	I_{CP}	100	
Forward Current	DC	I_F	50	A
	1ms	I_{FM}	100	
Collector Power Dissipation (Tc = 25°C)		P_C	400	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40 ~ 125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 min.)	V
Screw Torque (Terminal/Mounting)		—	3/3	N¥m

Equivalent Circuit



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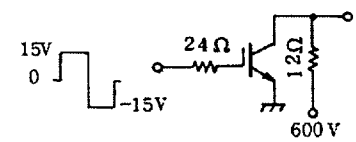
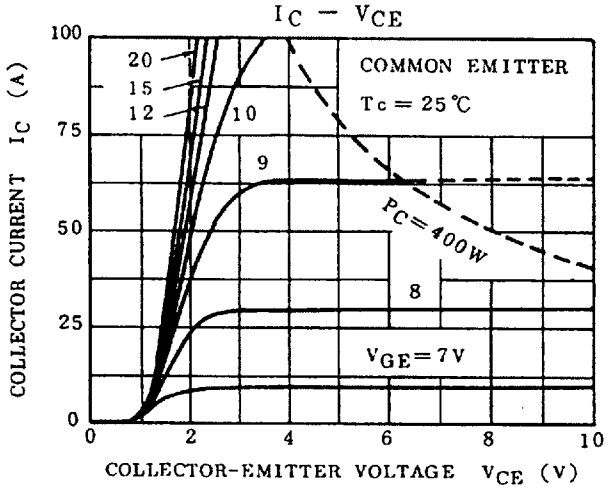
Electrical Characteristics (Ta = 25°C)

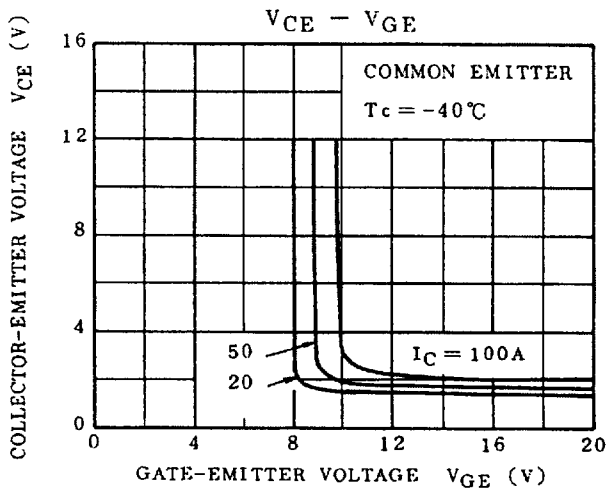
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	V_{GE} = ± 20V, V_{CE} = 0	—	—	± 500	nA
Collector Cut-off Current		I_{CES}	V_{CE} = 1200V, V_{GE} = 0	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		$V_{GE\ (OFF)}$	I_C = 50mA, V_{CE} = 5V	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 50A, V_{GE} = 15V	—	2.2	2.7	V
Input Capacitance		C_{ies}	V_{CE} = 10V, V_{GE} = 0, f = 1MHz	—	7800	—	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		—	0.6	1.0	
	Turn-off Time	t_{off}		—	1.2	1.8	
Forward Voltage		V_F	I_F = 50A, V_{GE} = 0	—	2.0	2.5	V
Reverse Recovery Time		t_{rr}	I_F = 50A, V_{GE} = -10V di/dt = 100A/µs	—	0.25	0.5	µs
Thermal Resistance		$R_{th\ (j-c)}$	Transistor	—	—	0.31	°C/W
			Diode	—	—	1.0	

Note 1 : Do not apply the over rating voltage.

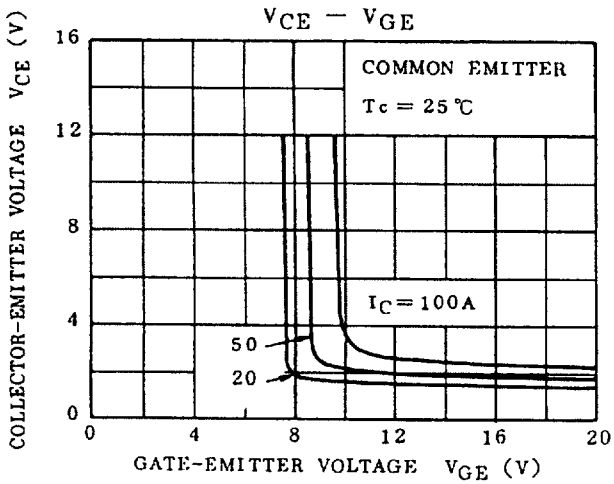
$I_C - V_{CE}$



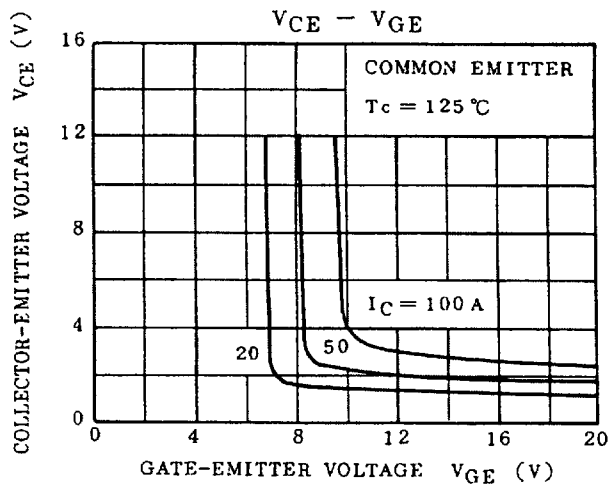
$V_{CE} - V_{GE}$



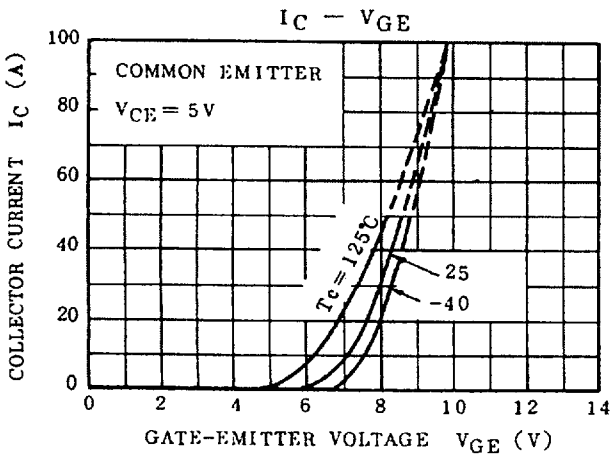
$V_{CE} - V_{GE}$



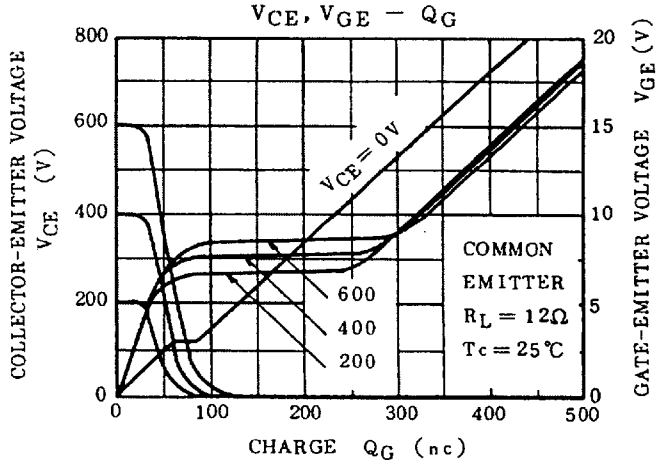
$V_{CE} - V_{GE}$



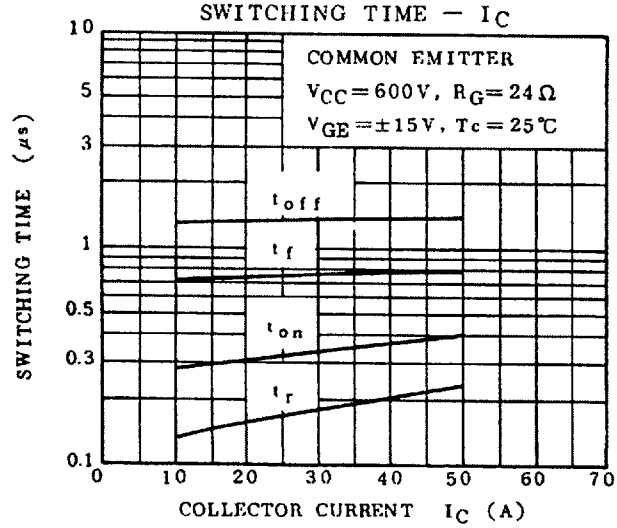
$I_C - V_{GE}$



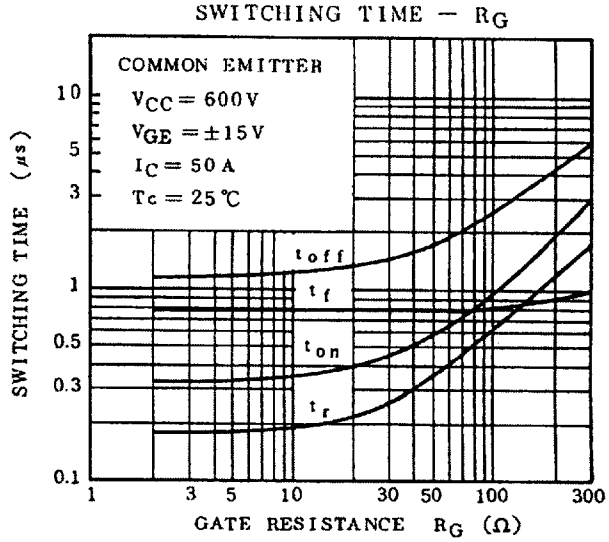
$V_{CE}, V_{GE} - Q_G$



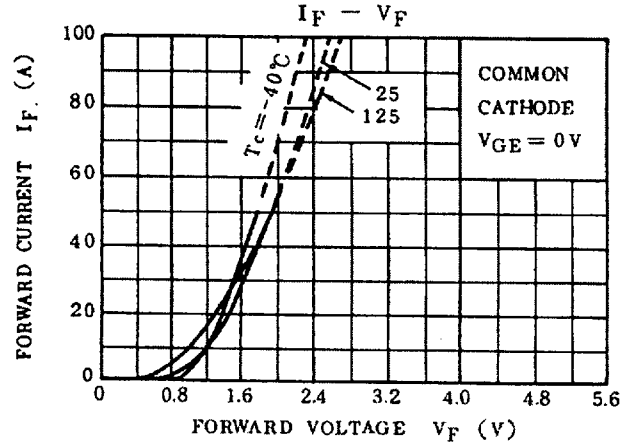
SWITCHING TIME — I_C



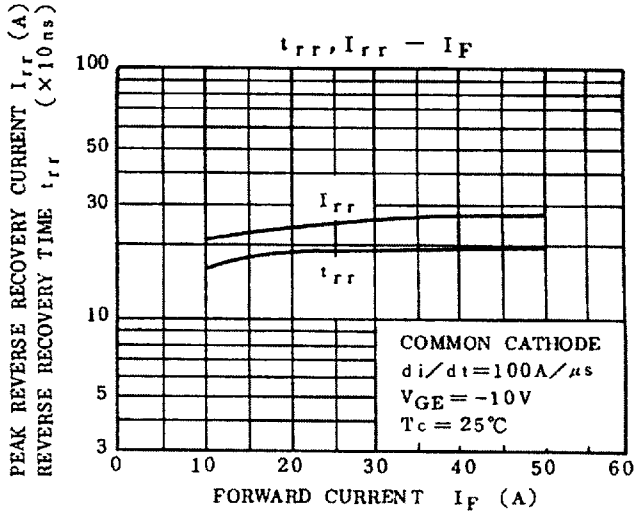
SWITCHING TIME — R_G



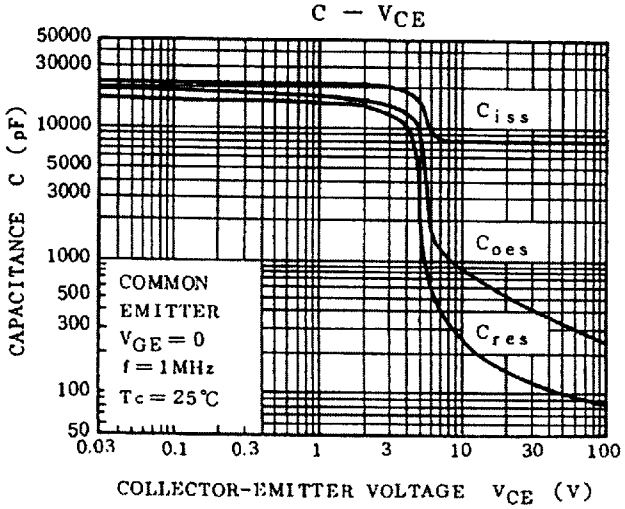
I_F — V_F



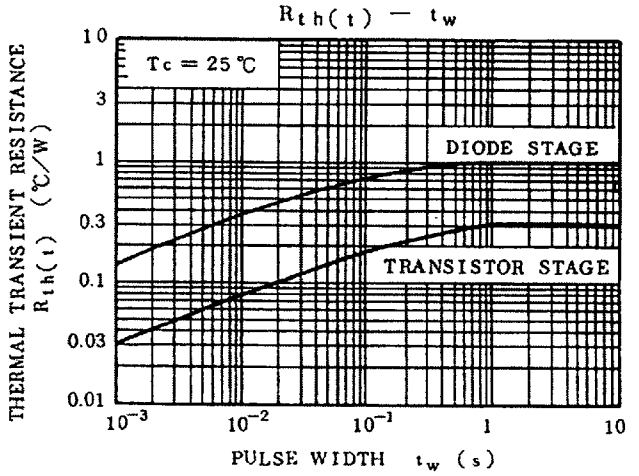
t_{rr}, I_{rr} — I_F



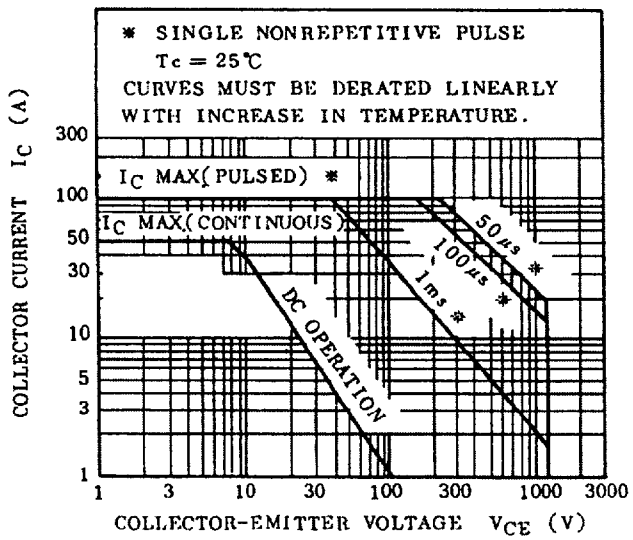
C — V_{CE}



$R_{th(t)}$ — t_w



SAFE OPERATING AREA



REVERSE BIAS SOA