

TOSHIBA

INSULATED GATE BIPOLAR TRANSISTOR

MG15J6ES40

GTR Module

Silicon N Channel IGBT

High Power Switching Applications

Motor Control Applications

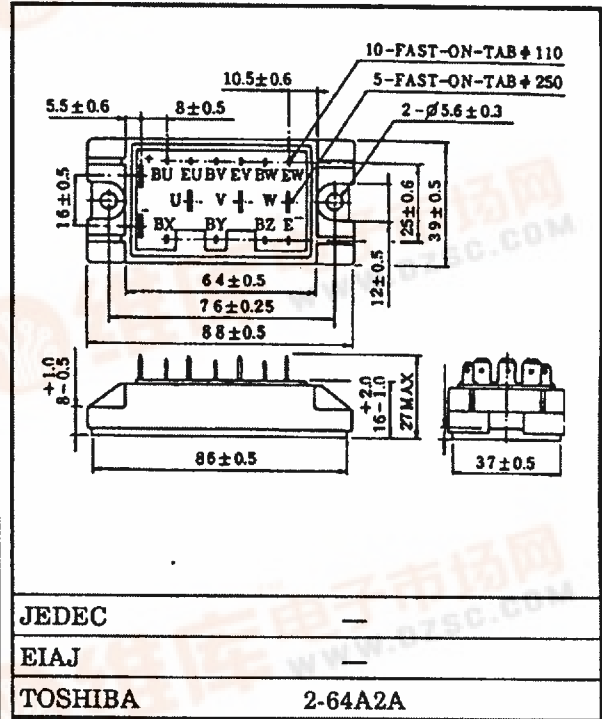
Features

- 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	15	A
	1ms	I_{CP}	30	
Forward Current	DC	I_F	15	A
	1ms	I_{FM}	30	
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 \neq m

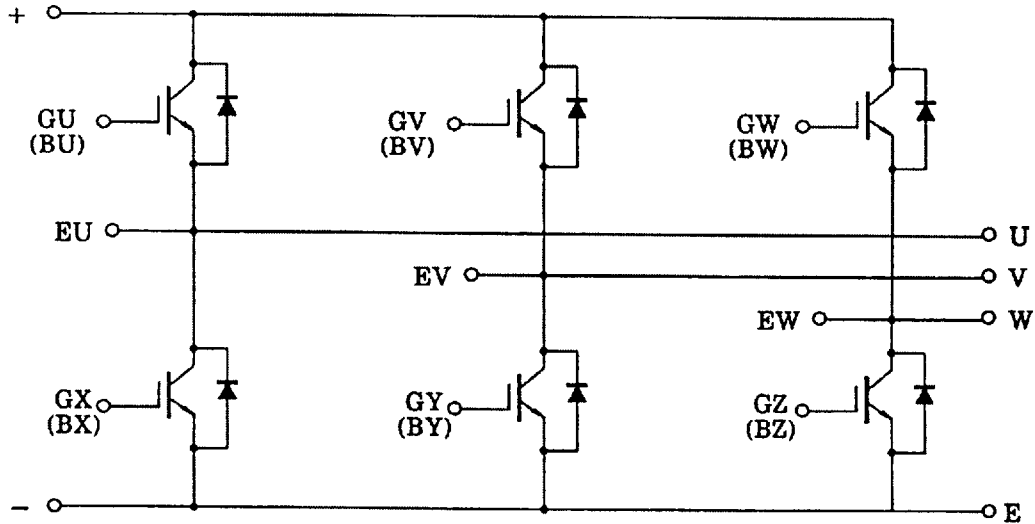
Unit in mm



Weight : 152g



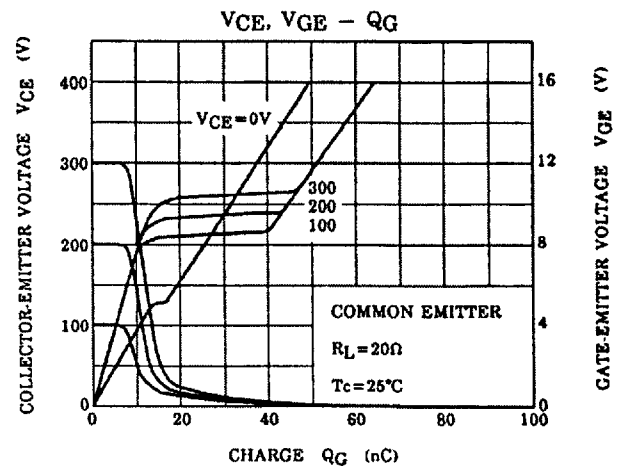
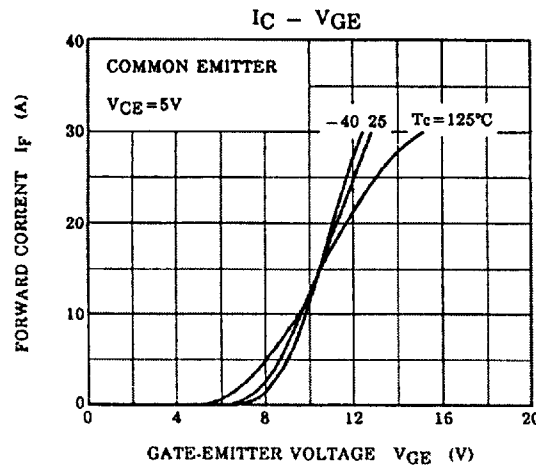
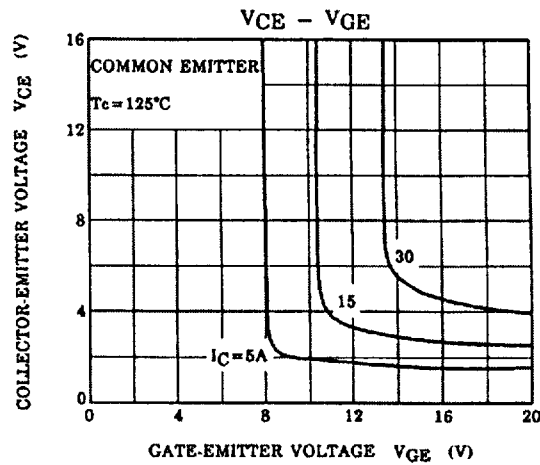
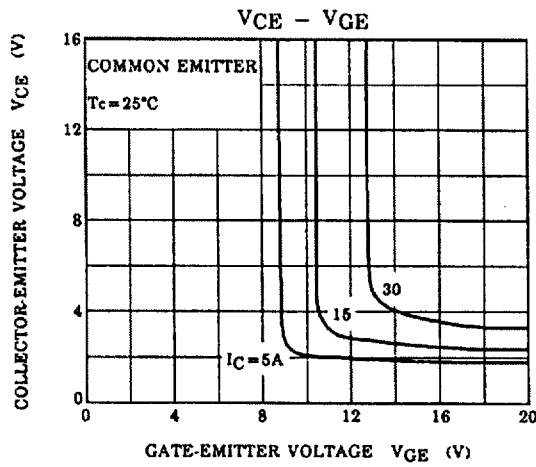
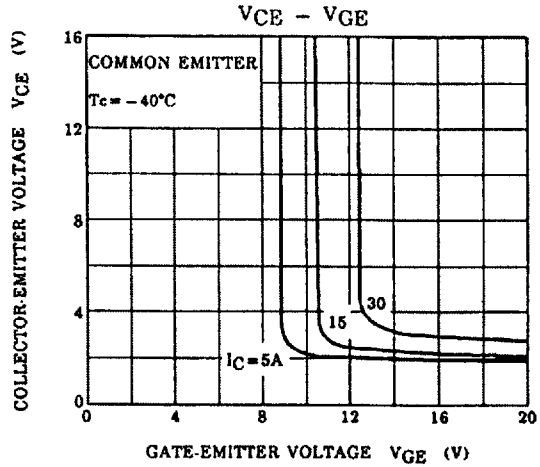
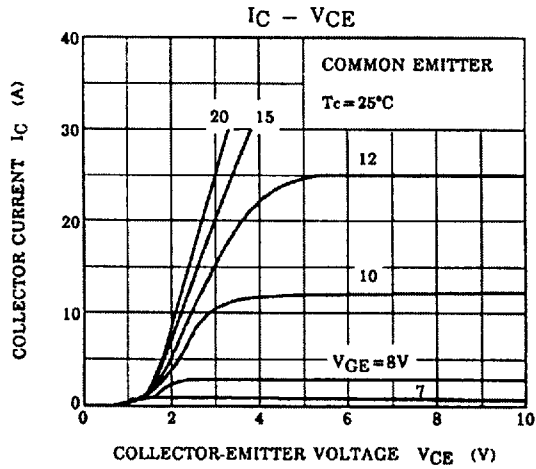
Equivalent Circuit

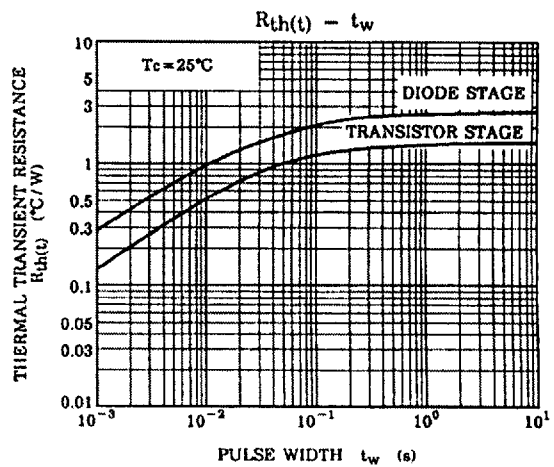
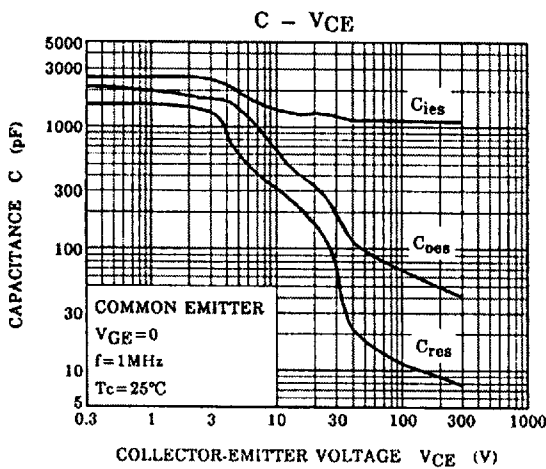
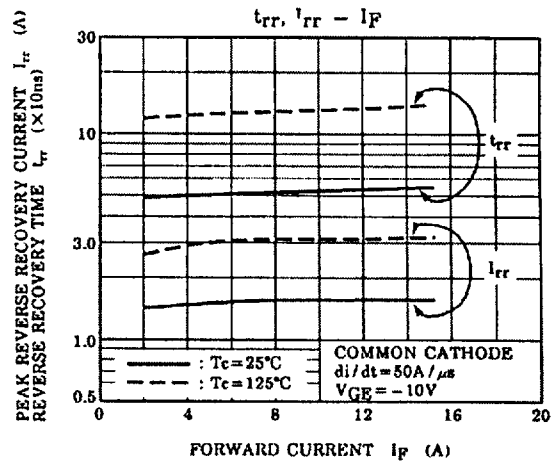
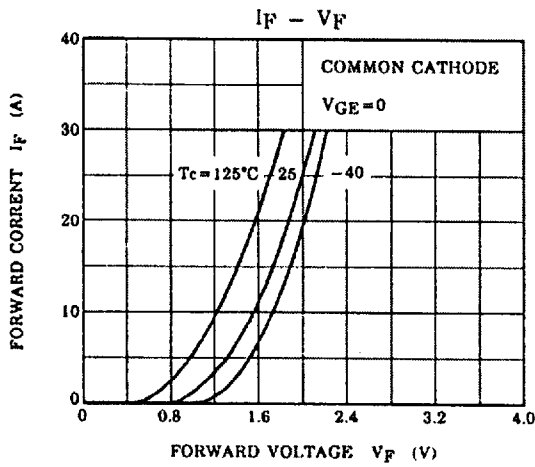
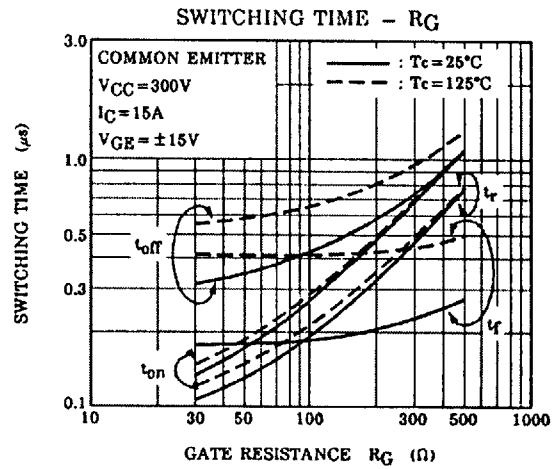
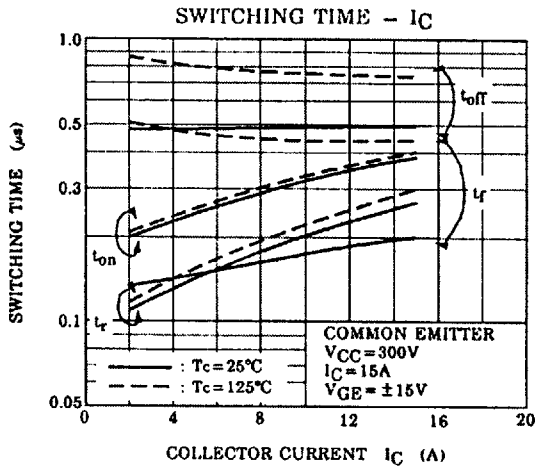


Electrical Characteristics (Tc = 25°C)

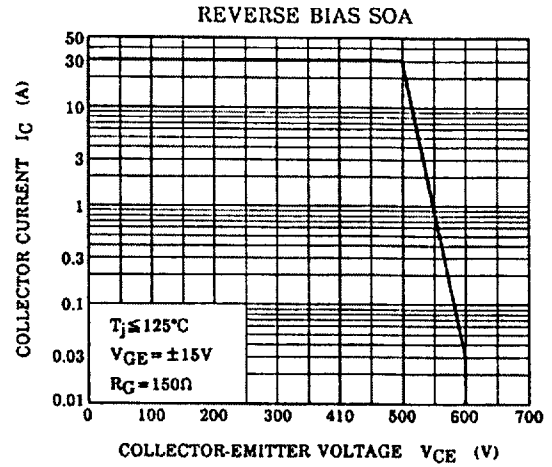
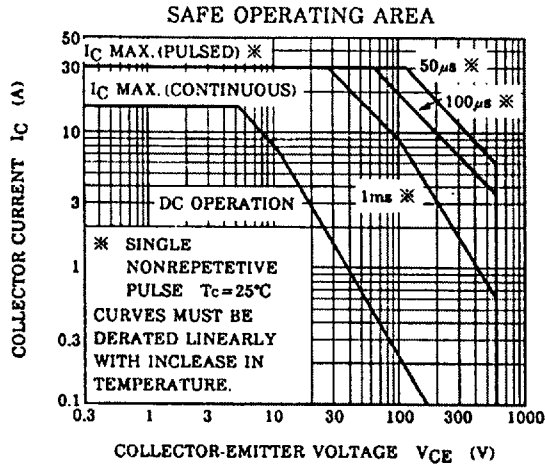
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	± 500	nA
Collector Cut-off Current		I_{CES}	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Collector-Emitter Breakdown Voltage		$V_{(BR) CES}$	$I_C = 10mA, V_{GE} = 0$	600	—	—	V
Gate-Emitter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

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