

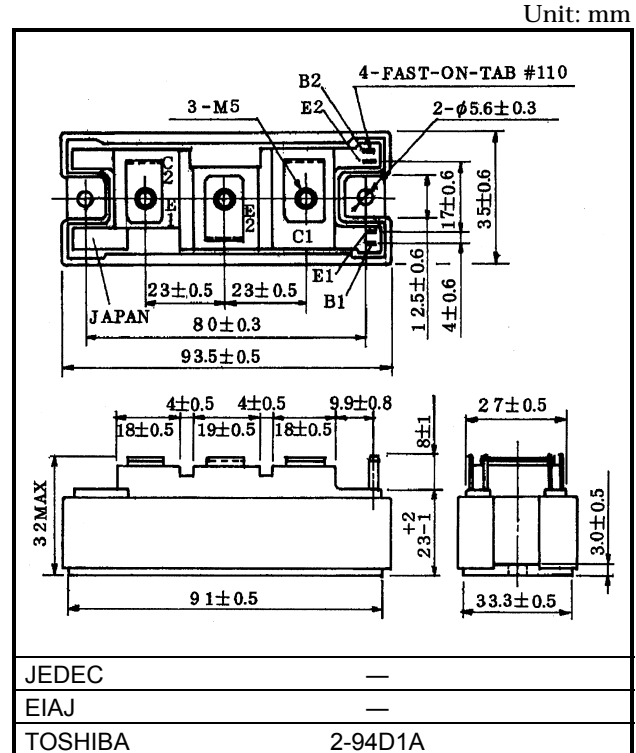
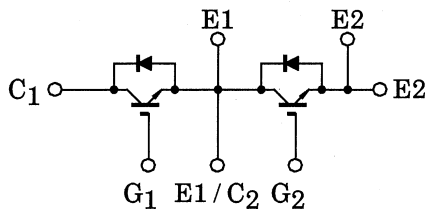
TOSHIBA GTR Module Silicon N Channel IGBT

MG100J2YS50

High Power Switching Applications
Motor Control Applications

- The electrodes are isolated from case.
- High input impedance.
- Includes a complete half bridge in one package.
- Enhancement-mode.
- High speed : $t_f = 0.30\mu s$ (Max) ($I_C = 100A$)
 $t_{rr} = 0.15\mu s$ (Max) ($I_F = 100A$)
- Low saturation voltage
: $V_{CE(sat)} = 2.70V$ (Max) ($I_C = 100A$)

Equivalent Circuit



Weight: 202g (Typ.)

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

Characteristic		Symbol	Rating	Unit
Collector-emitter voltage		V_{CES}	600	V
Gate-emitter voltage		V_{GES}	± 20	V
Collector current	DC	I_C	100	A
	1ms	I_{CP}	200	
Forward current	DC	I_F	100	A
	1ms	I_{FM}	200	
Collector power dissipation ($T_c = 25^\circ C$)		P_C	450	W
Junction temperature		T_j	150	$^\circ C$
Storage temperature range		T_{stg}	$-40 \sim 125$	$^\circ C$
Isolation voltage		V_{Isol}	2500 (AC 1 min.)	V
Screw torque (Terminal / mounting)		—	3 / 3	N·m

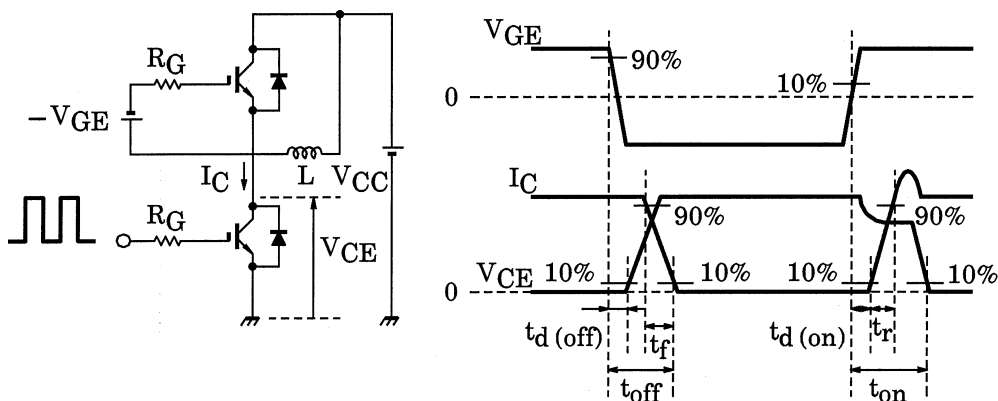
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Electrical Characteristics (Ta = 25°C)

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		$V_{GE (off)}$	$I_C = 10mA, V_{CE} = 5V$	5.0	7.0	8.0	V
Collector-emitter saturation voltage		$V_{CE (sat)}$	$I_C = 100A, V_{GE} = 15V$	—	2.10	2.70	V
Input capacitance		C_{ies}	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	9000	—	pF
Switching time	Turn-on delay time	$t_d (on)$	Inductive load $V_{CC} = 300V$ $I_C = 100A$ $V_{GE} = \pm 15V$ $R_G = 13\Omega$ (Note 1)	—	0.08	0.16	μs
	Rise time	t_r		—	0.12	0.24	
	Turn-on time	t_{on}		—	0.40	0.80	
	Turn-off delay time	$t_d (off)$		—	0.20	0.40	
	Fall time	t_f		—	0.15	0.30	
	Turn-off time	t_{off}		—	0.50	1.00	
Forward voltage		V_F	$I_F = 100A, V_{GE} = 0$	—	2.30	3.00	V
Reverse recovery time		t_{rr}	$I_F = 100A, V_{GE} = -10V$ $di / dt = 100A / \mu s$	—	0.08	0.15	μs
Thermal resistance		$R_{th (j-c)}$	Transistor stage	—	—	0.28	$^{\circ}C / W$
			Diode stage	—	—	0.69	

Note 1: Switching time test circuit & timing chart



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