

TOSHIBA GTR Module Silicon N Channel IGBT

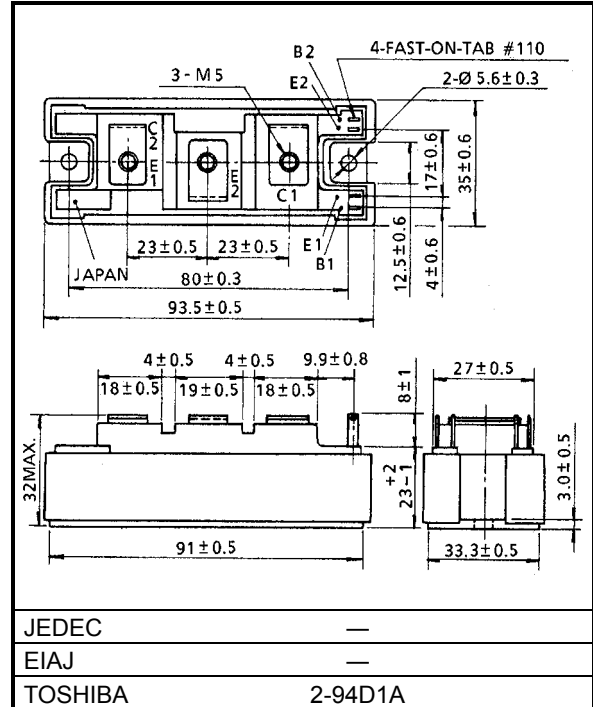
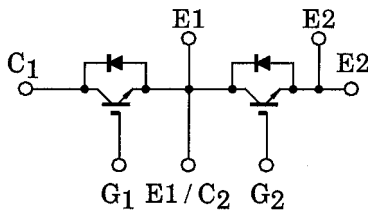
MG30V2YS40

High Power Switching Applications
 Motor Control Applications

Unit: mm

- The electrodes are isolated from case.
- High input impedance
- Includes a complete half bridge in one package.
- Enhancement-mode
- High speed : $t_f = 1.5\mu s$ (Max.) ($I_C = 30A$)
 $t_{rr} = 0.3\mu s$ (Max.) ($I_F = 30A$)

Equivalent Circuit



Maximum Ratings (Ta = 25°C)

Weight: 202g (Typ.)

Characteristic	Symbol	Rating	Unit
Collector-emitter voltage	V_{CES}	1700	V
Gate-emitter voltage	V_{GES}	±20	V
Collector current	DC	I_C	30
	1ms	I_{CP}	60
Forward current	DC	I_F	30
	1ms	I_{FM}	60
Collector power dissipation (Tc = 25°C)	P_C	500	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-40 ~ 125	°C
Isolation voltage	V_{isol}	4000 (AC 1 min.)	V
Screw torque (Terminal / mounting)	—	3 / 3	N·m

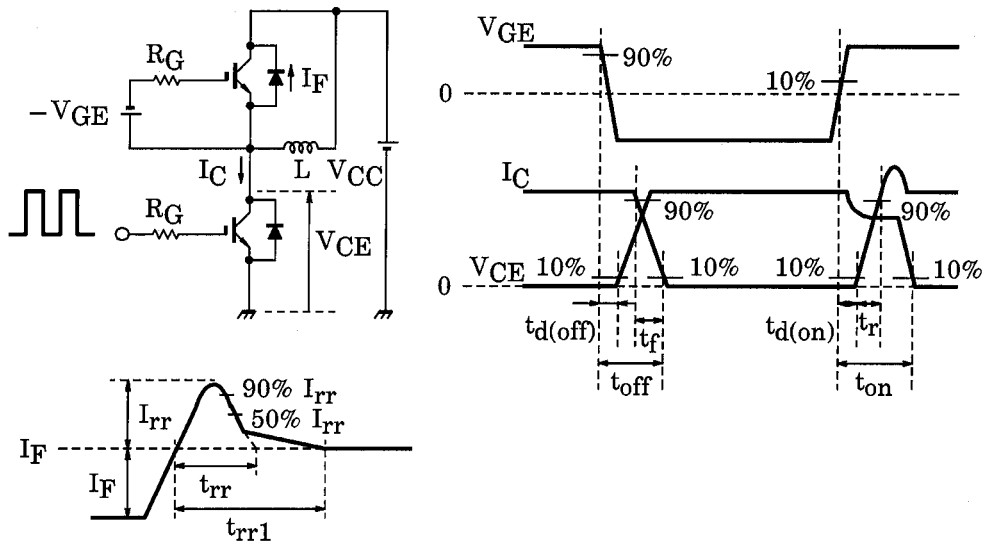
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Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GES}	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	± 50	nA
Collector cut-off current		I_{CES}	$V_{CE} = 1700V, V_{GE} = 0$	—	—	0.5	mA
Gate-emitter cut-off voltage		$V_{GE (off)}$	$I_C = 30mA, V_{CE} = 5V$	4.0	—	8.0	V
Collector-emitter saturation voltage		$V_{CE (sat)}$	$I_C = 30A, V_{GE} = 15V$	—	3.2	4.5	V
Input capacitance		C_{ies}	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	4400	—	pF
Switching time	Turn-on delay time	$t_d (on)$	Inductive load $V_{CC} = 900V$ $I_C = 30A$ $V_{GE} = \pm 15V$ $R_G = 24\Omega$ (Note 1)	—	0.1	—	μs
	Rise time	t_r		—	0.1	—	
	Turn-on time	t_{on}		—	0.5	—	
	Turn-off delay time	$t_d (off)$		—	0.4	—	
	Fall time	t_f		—	0.5	1.5	
	Turn-off time	t_{off}		—	1.0	—	
Forward voltage		V_F	$I_F = 30 A, V_{GE} = 0$	—	3.2	4.5	V
Reverse recovery time		t_{rr}	$I_F = 30 A, V_{GE} = -15 V, di / dt = 500 A / \mu s$ (Note 1)	—	0.1	0.3	μs
Thermal resistance		$R_{th (j-c)}$	Transistor stage	—	—	0.25	$^{\circ}C / W$
			Diode stage	—	—	1.0	

Note 1: Switching time and reverse recovery time test circuit & timing chart



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