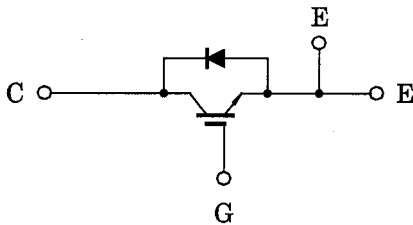


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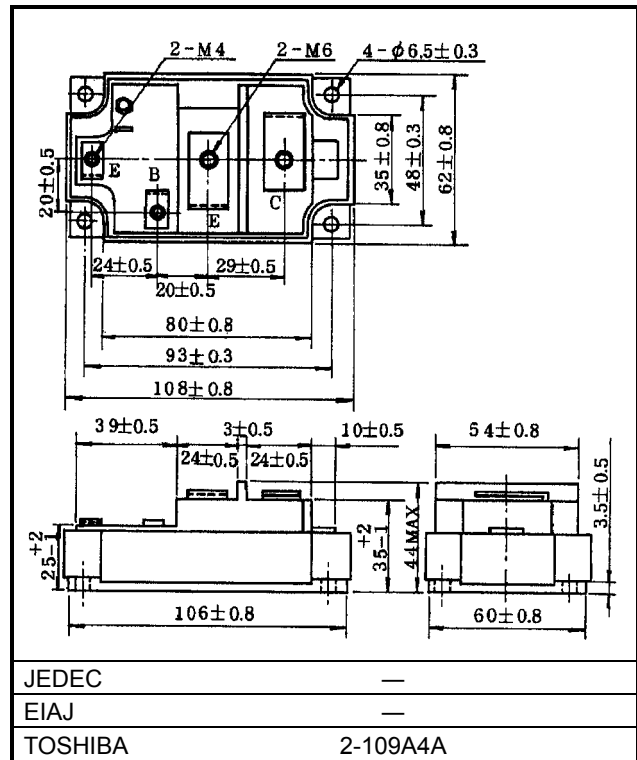
High Power Switching Applications
 Motor Control Applications

- 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.) ($I_C = 300A$)
 $t_{rr} = 0.15\mu s$ (Max.) ($I_F = 300A$)
- Low saturation voltage
 $V_{CE(sat)} = 2.70V$ (Max.) ($I_C = 300A$)

Equivalent Circuit



Unit: mm



Weight: 465g (Typ.)

Maximum Ratings (Ta = 25°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 (Tc = 25°C)	P_C	1300	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-40 ~ 125	°C
Isolation voltage	V_{isol}	2500 (AC 1 minute)	V
Screw torque (Terminal / M4 / M6 / mounting)	—	2 / 3 / 3	N·m

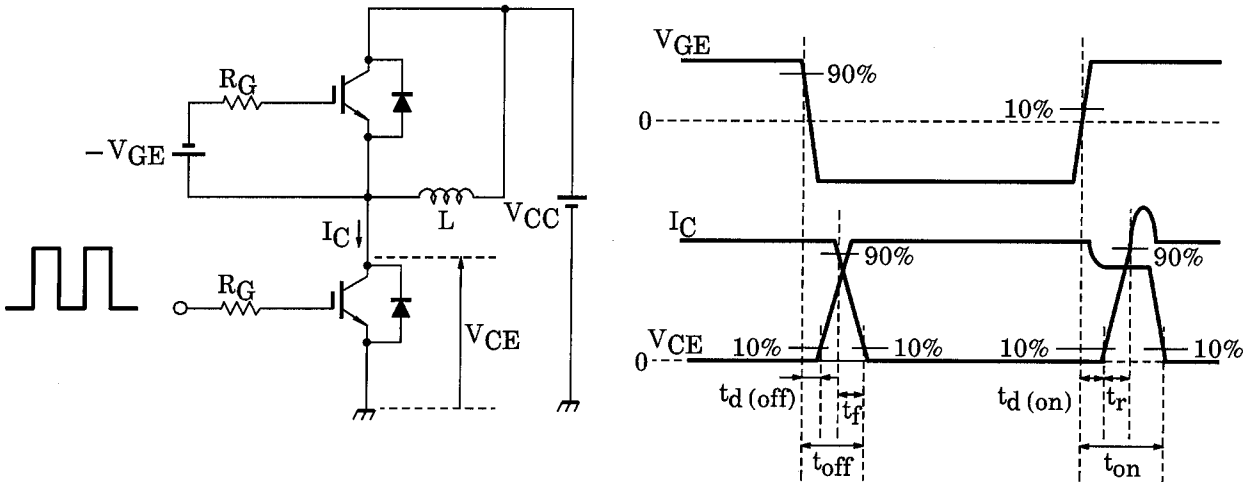
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 In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..

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}	$V_{CE} = 600V, V_{GE} = 0$	—	—	4.0	mA
Gate-emitter cut-off voltage		$V_{GE(Off)}$	$I_C = 30mA, V_{CE} = 5V$	5.0	7.0	8.0	V
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 300A, V_{GE} = 15V$	—	2.10	2.70	V
Input capacitance		C_{ies}	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	28400	—	pF
Switching time	Turn-on delay time	$t_{d(on)}$	Inductive load $V_{CC} = 300V$ $I_C = 300A$ $V_{GE} = \pm 15V$ $R_G = 3.0\Omega$ (Note 1)	—	0.20	0.40	μs
	Rise time	t_r		—	0.15	0.30	
	Turn-on time	t_{on}		—	0.60	1.20	
	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	$I_F = 300 A, V_{GE} = 0$	—	2.30	3.00	V
Reverse recovery time		t_{rr}	$I_F = 300 A, V_{GE} = -10 V, di/dt = 400 A/\mu s$	—	0.08	0.15	μs
Thermal resistance		$R_{th(j-c)}$	Transistor stage	—	—	0.096	$^{\circ}C/W$
			Diode stage	—	—	0.20	

Note 1: Switching time test circuit & timing chart



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