

**TOSHIBA**

**MG100J1ZS40**

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

# MG100J1ZS40

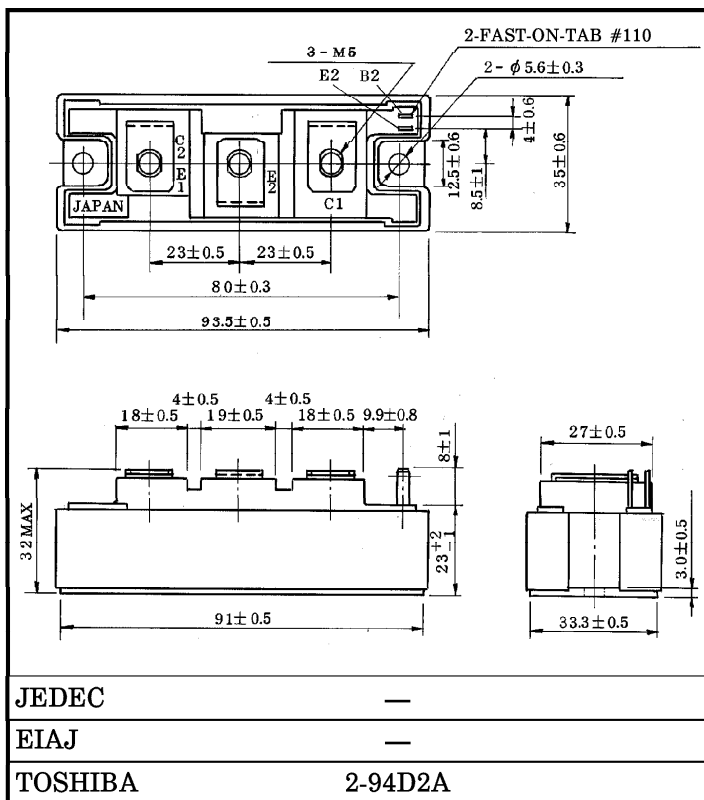
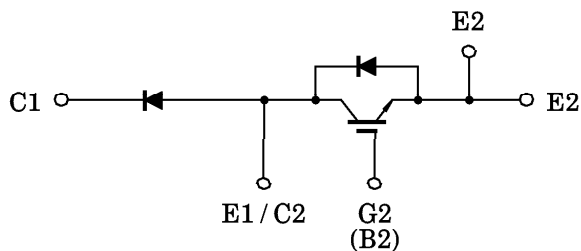
HIGH POWER SWITCHING APPLICATIONS.

Unit in mm

MOTOR CONTROL APPLICATIONS.

- High Input Impedance
- High Speed :  $t_f = 0.35 \mu s$  (Max.)  
 $t_{rr} = 0.15 \mu s$  (Max.)
- Low Saturation Voltage  
:  $V_{CE(sat)} = 3.5V$  (Max.)
- Enhancement-Mode
- The Electrodes are Isolated from Case.

EQUIVALENT CIRCUIT



Weight : 202g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	600	V
Gate-Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	100
	1ms	$I_{CP}$	200
Forward Current	DC	$I_F$	100
	1ms	$I_{FM}$	200
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 minute)	V
Screw Torque (Terminal / Mounting)	—	3 / 3	Nm

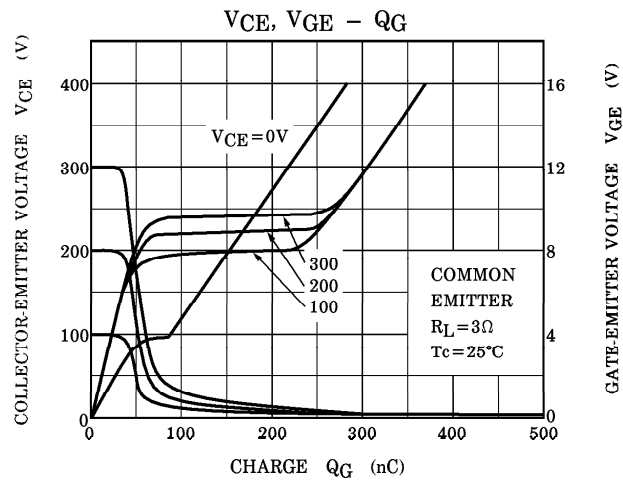
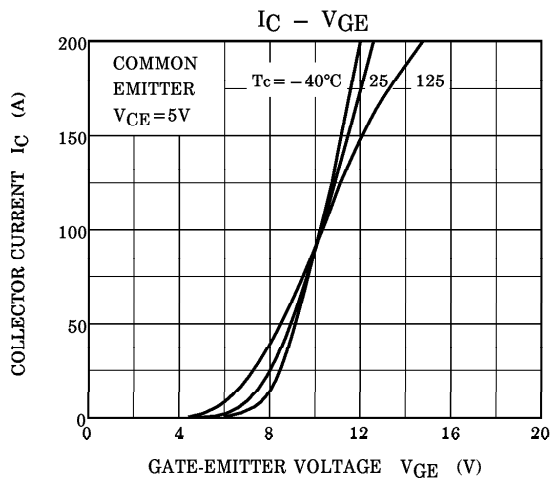
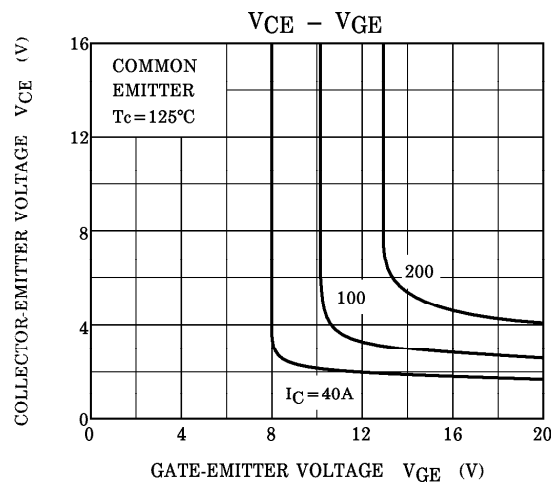
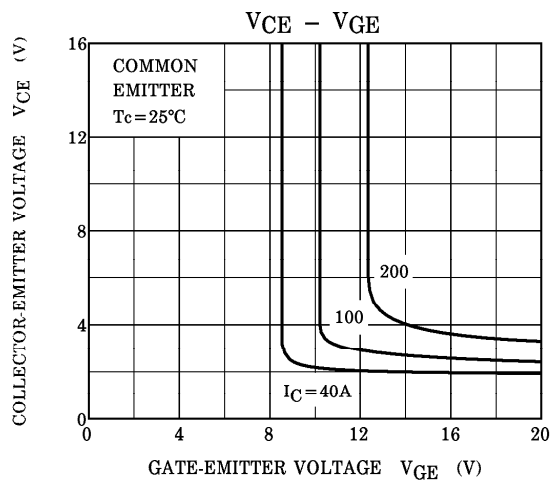
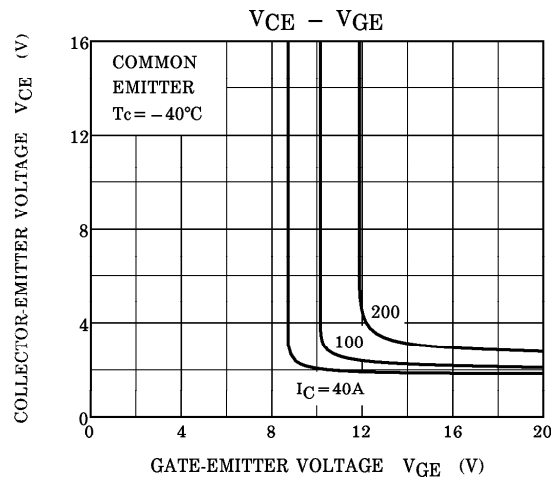
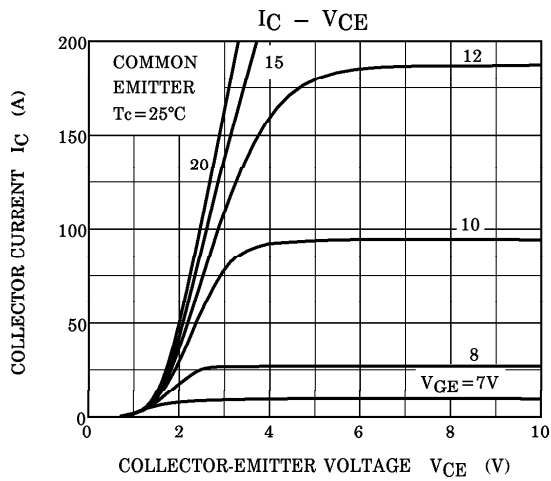
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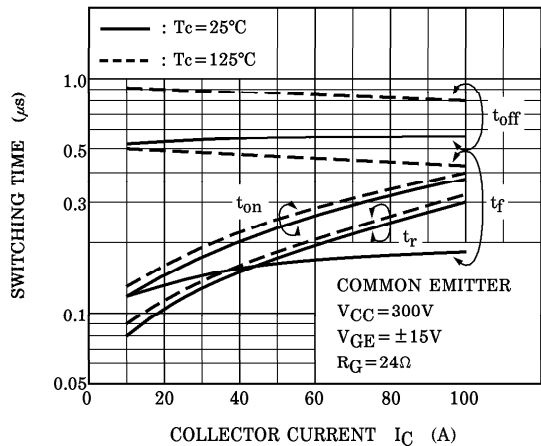
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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

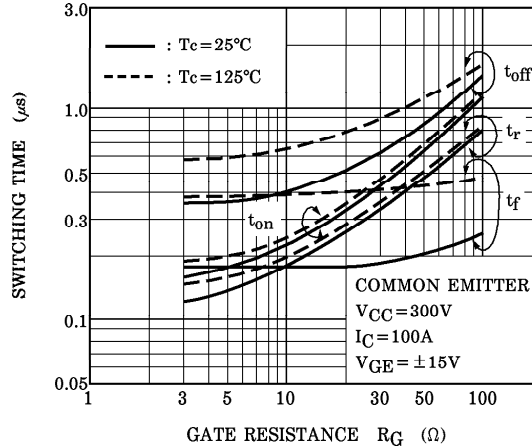
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 500$	nA
Collector Cut-off Current		$I_{CES}$	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Collector-Emitter Breakdown Voltage		$V_{(BR) CES}$	$I_C = 10mA, V_{GE} = 0$	600	—	—	V
Gate-Emitter Cut-off Voltage		$V_{GE (off)}$	$I_C = 100mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE (sat)}$	$I_C = 100A, V_{GE} = 15V$	—	2.7	3.5	V
Input Capacitance		$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0,$ $f = 1MHz$	—	8100	—	pF
Switching Time	Rise Time	$t_r$		—	0.30	0.60	$\mu s$
	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		$V_F$	$I_F = 100A, V_{GE} = 0$	—	2.0	2.70	V
Reverse Recovery Time		$t_{rr}$	$I_F = 100A, V_{GE} = -10V,$ $di/dt = 100A/\mu s$	—	0.08	0.15	$\mu s$
Thermal Resistance		$R_{th (j-c)}$	Transistor	—	—	0.31	$^{\circ}C/W$
			Diode	—	—	0.83	



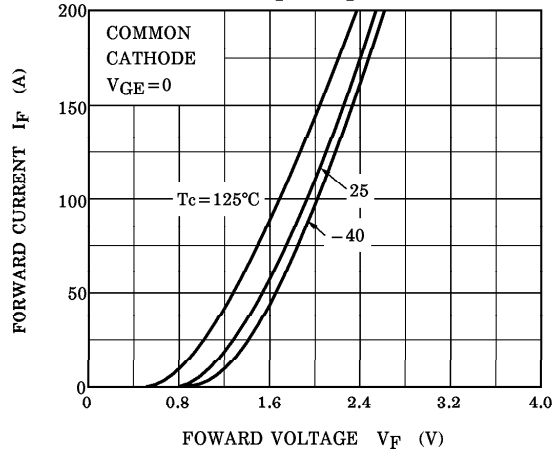
SWITCHING TIME -  $I_C$



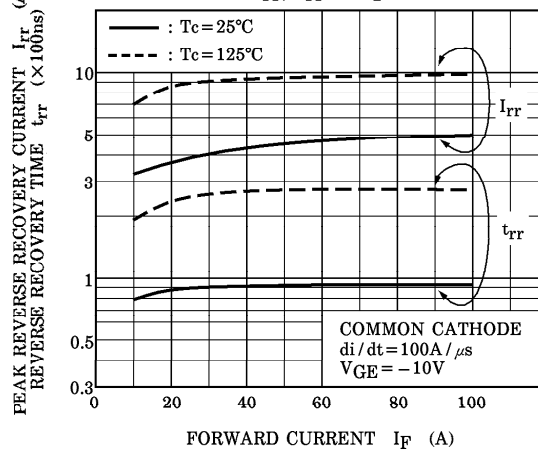
SWITCHING TIME -  $R_G$



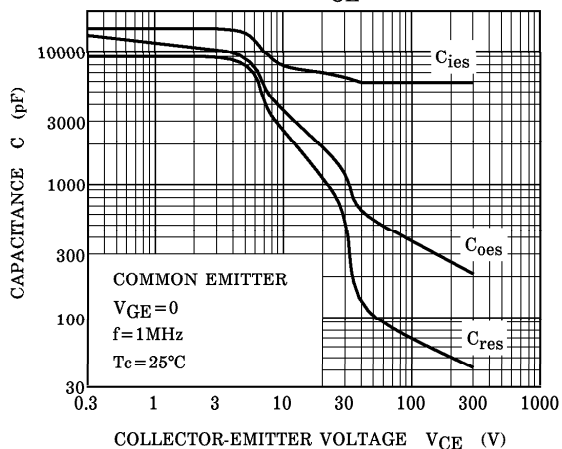
$I_F - V_F$



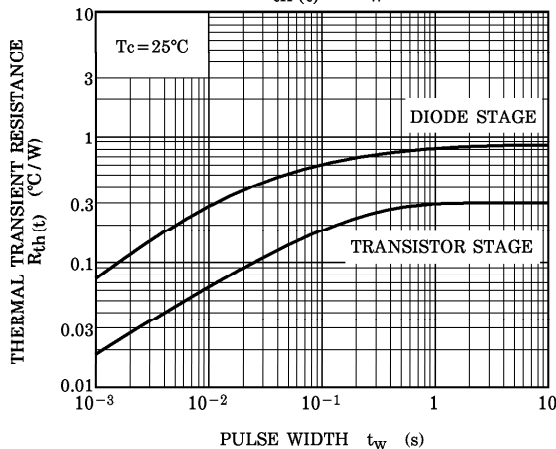
$t_{rr}, I_{rr} - I_F$



C -  $V_{CE}$



$R_{th}(t) - t_w$



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