TOSHIBA GTR Module Silicon N Channel IGBT

MG150Q2YS50

High Power Switching Applications Motor Control Applications

High input impedance

• High speed : $t_f = 0.3\mu s \text{ (Max)}$

@Inductive load

• Low saturation voltage

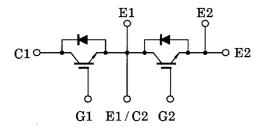
: $V_{CE (sat)} = 3.6V (Max)$

• Enhancement-mode

• Includes a complete half bridge in one package.

• The electrodes are isolated from case.

Equivalent Circuit



Unit: mm 4 -FAST-ON-TAB # 110 2-ø5.4 ± 0.3 3 - M523 ± 0.5 23 ± 0.5 80 ± 0.3 7 ± 0.5 7 ± 0.5 16 ± 0.5 16 ± 0.5 16 ± 0.5 20 ± 0.5 3.0 ± 0.5 29.7 -0.6 91.6 ± 0.5 45.7 ± 0.5 **JEDEC** EITA **TOSHIBA** 2-95A4A

Weight: 255g

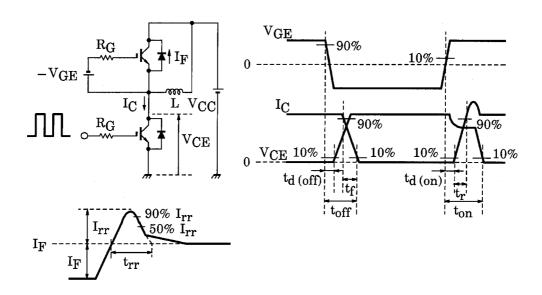
Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit	
Collector-emitter voltage		V _{CES}	1200	V	
Gate-emitter voltage		V _{GES}	±20	V	
Collector current	DC	(25°C / 80°C) 200 / 150		А	
	1ms	I _{CP} (25°C / 80°C)	400 / 300		
Forward current	DC	IF	150	А	
	1ms	I _{FM}	300		
collector power dissipation (Tc = 25°C)		PC	1250	W	
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	− 40 ~ 125	°C	
Isolation voltage		V _{Isol}	2500 (AC 1 min.)	V	
Screw torque (Terminal / mounting)		_	3/3	N·m	

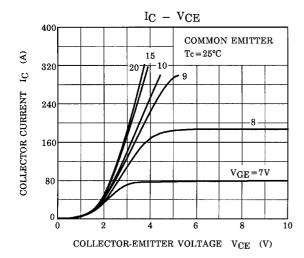
Electrical Characteristics (Ta = 25°C)

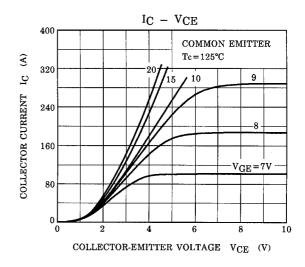
Char	acteristic	Symbol	Test Condition		Min	Тур.	Max	Unit
Gate leakage current		I _{GES}	V _{GE} = ±20V, V _{CE} = 0		_	_	±500	nA
Collector cut-off of	urrent	I _{CES}	V _{CE} = 1200V, V _{GE} = 0		_	_	2.0	mA
Gate-emitter cut-	off voltage	V _{GE (off)}	I _C = 150mA, V _{CE} = 5V		3.0	_	6.0	V
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = 150A, V _{GE} = 15V	T _j = 25°C	_	2.8	3.6	V
				T _j = 125°C	_	3.1	4.0	
Input capacitance	•	C _{ies}	V _{CE} = 10V, V _{GE} = 0, f = 1MHz		_	18.0	_	nF
Switching time	Turn-on delay time	t _{d(on)}	Inductive load V _{CC} = 600V I _C = 150A		_	0.05	_	µs
	Rise time	t _r			_	0.05	_	
	Turn-on time	t _{on}			_	0.2	_	
	Turn-off delay time	t _{d(off)}	$V_{GE} = \pm 15V$ $R_G = 5.6\Omega$	_	0.5	_		
	Fall time	t _f	(Note 1)		_	0.1	0.3	
	Turn-off time	t _{off}			_	0.6	_	
Forward voltage	•	V _F	I _F = 150A, V _{GE} = 0		_	2.4	3.5	V
Reverse recovery time		t _{rr}	I_F = 150A, V_{GE} = -10V di / dt = 700A / μ s (Note 1)		_	0.1	0.25	μs
Thermal resistance		R _{th (j-c)}	Transistor stage		_	_	0.1	°C/W
			Diode stage		_	_	0.32	

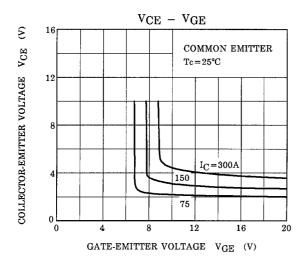
Note 1: Switching time and reverse recovery time test circuit & timing chart

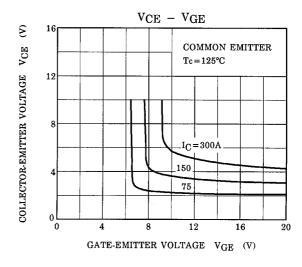


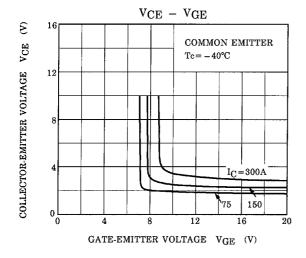
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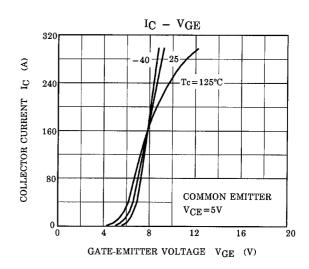




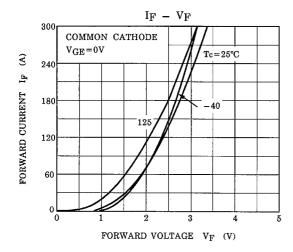


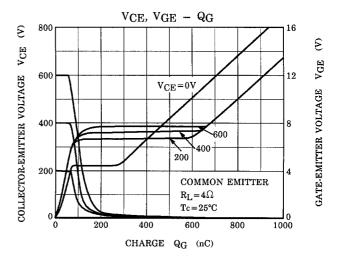


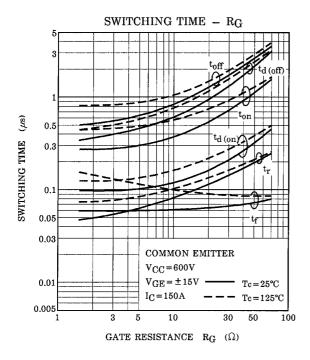


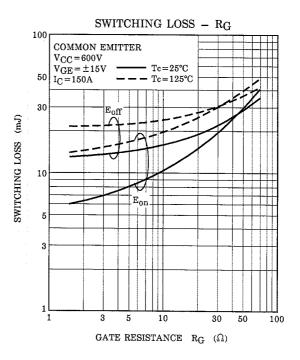


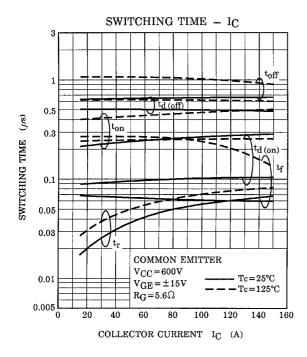
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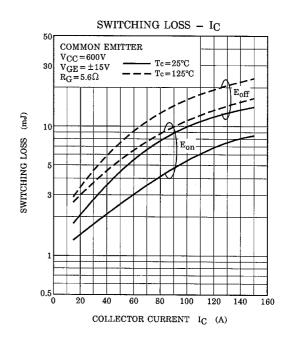


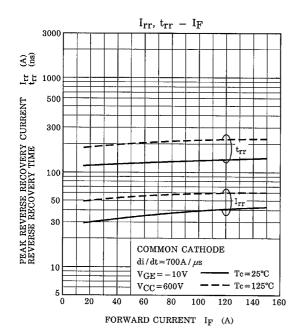


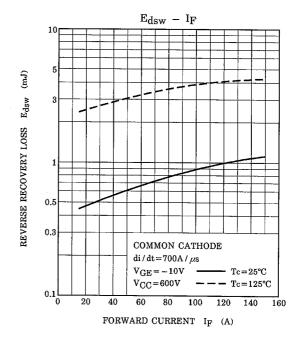


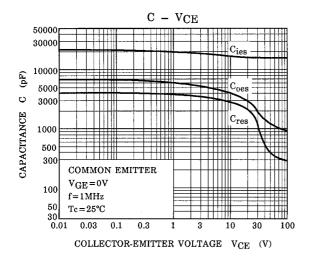


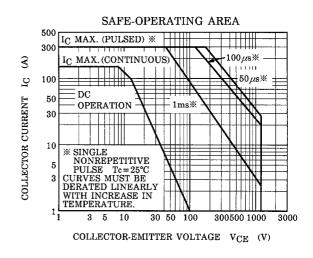


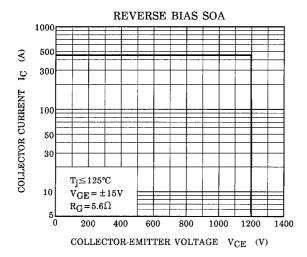


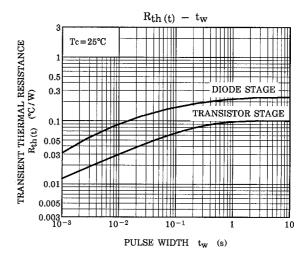


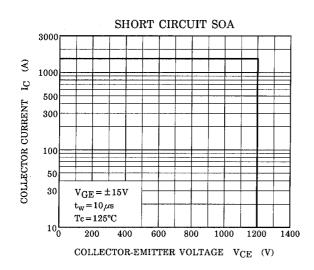












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