Unit: mm

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL IGBT

GT60M303

HIGH POWER SWITCHING APPLICATIONS

• Fourth generation IGBT

• FRD included between emitter and collector

• Enhancement mode type

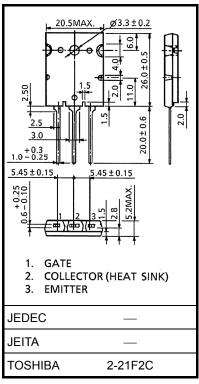
• High speed I_{GBT} : $t_f = 0.25 \mu s$ (TYP.)

FRD : $t_{rr} = 0.7 \mu s$ (TYP.)

• Low saturation voltage : $V_{CE (sat)} = 2.1V (TYP.)$

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
Collector-Emitter Voltage		V _{CES}	900	V	
Gate-Emitter Voltage		V_{GES}	±25	V	
Collector Current	DC	IC	60	Α	
	1ms	I _{CP}	120		
Emitter-Collector Foward Current	DC	I _{ECF}	15	А	
	1ms	I _{ECFP}	120		
Collector Power Dissipation (Tc = 25°C)		PC	170	W	
Junction Temperature		Tj	150	°C	
Storage Temperature Range		T _{stg}	-55~150	°C	
Screw Torque		_	0.8	N·m	

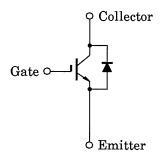


Weight: 9.75 g (typ.)

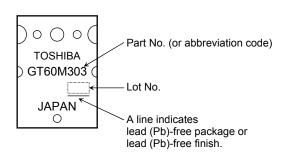
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

EQUIVALENT CIRCUIT

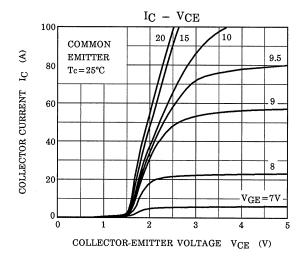


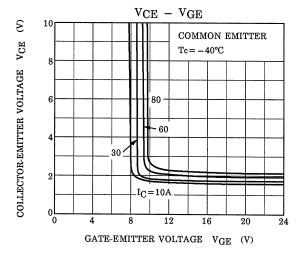
MARKING

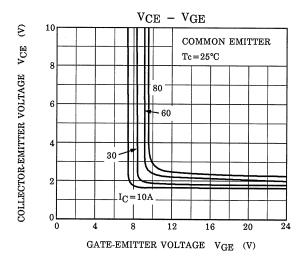


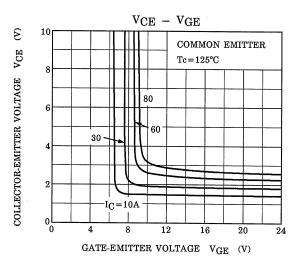
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

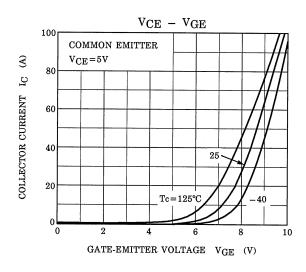
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Leakage Current		I _{GES}	V _{GE} = ±25V, V _{CE} = 0	_	_	±500	nA
Collector Cut-off Current		I _{CES}	V _{CE} = 900V, V _{GE} = 0	-	_	1.0	mA
Gate-Emitter Cut-off Voltage		V _{GE} (OFF)	I _C = 60mA, V _{CE} = 5V	3.0	_	6.0	V
Collector-Emitter Saturation Voltage		V _{CE} (sat) (1)	I _C = 10A, V _{GE} = 15V	_	1.6	2.2	V
Collector-Emitter Saturation Voltage		V _{CE} (sat) (2)	I _C = 60A, V _{GE} = 15V	_	2.1	2.7	V
Input Capacitance		C _{ies}	V _{CE} = 10V, V _{GE} = 0, f = 1MHz	_	3800	_	pF
Switching Time	Rise Time	t _r	15V 51Ω C C C C C C C C C C C C C C C C C C C	_	0.35	0.60	- µs
	Turn-On Time	ton		_	0.46	0.75	
	Fall Time	t _f			0.25	0.40	
	Turn-Off Time	t _{off}			0.60	0.70	
Emitter-Collector Forward Voltage		V _{ECF}	I _{EC} = 15A, V _{GE} = 0		1.5	2.0	V
Reverse Recovery Time		t _{rr}	I _F = 15A, V _{GE} = 0 di / dt = -20A / μs	_	0.7	2.5	μs
Thermal Resistance R _{tl}		R _{th (j-c)}	IGBT	_	_	0.74	°C / W
Thermal Resistance		R _{th (j−c)}	Diode	_	_	4.0	°C / W

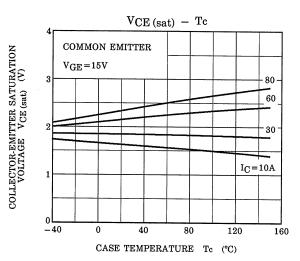


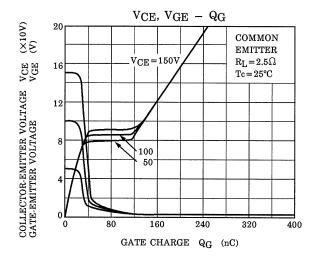


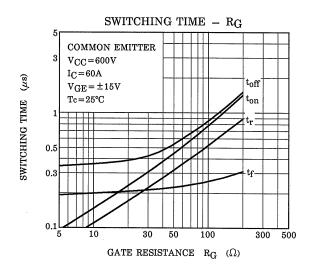


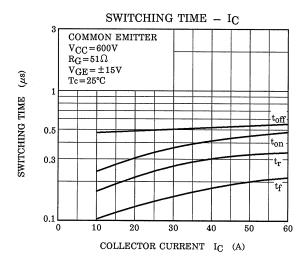


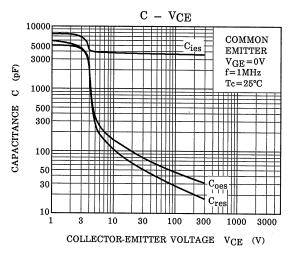


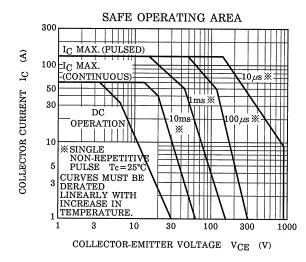


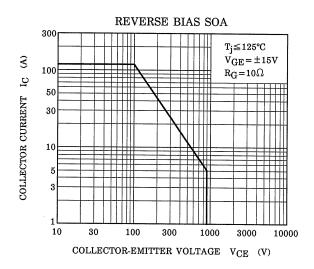


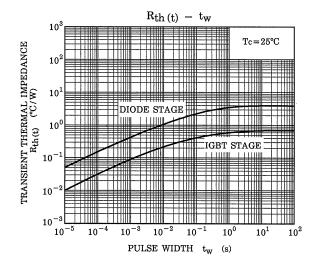


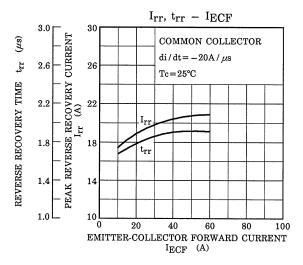


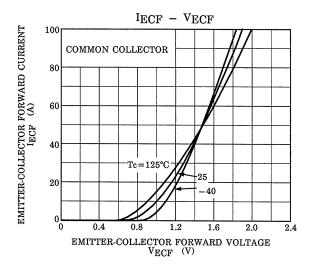


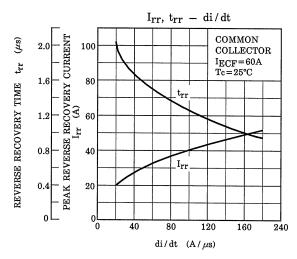












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