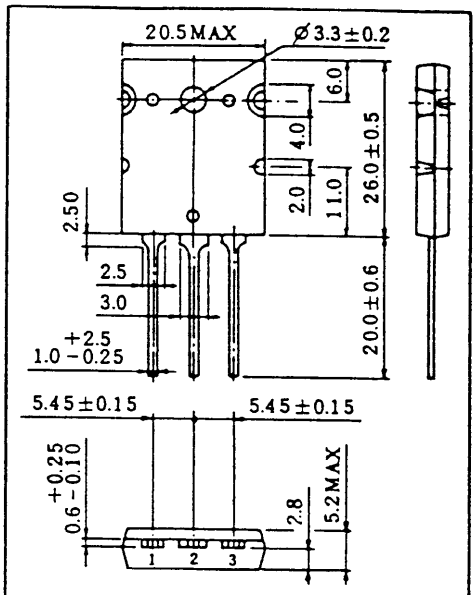
737-914

GT50J101

HIGH POWER SWITCHING APPLICATIONS.

- High Input Impedance
- High Speed : t_f=0.35μs(Max.)
- Low Saturation Voltage : $V_{CE(sat)}$=4.0V(Max.)
- Enhancement-Mode

Unit in mm



1. GATE
2. COLLECTOR (HEAT SINK)
3. EMITTER

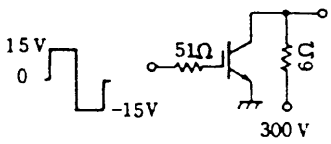
JEDEC	—
EIAJ	—
TOSHIBA	2-21F1C

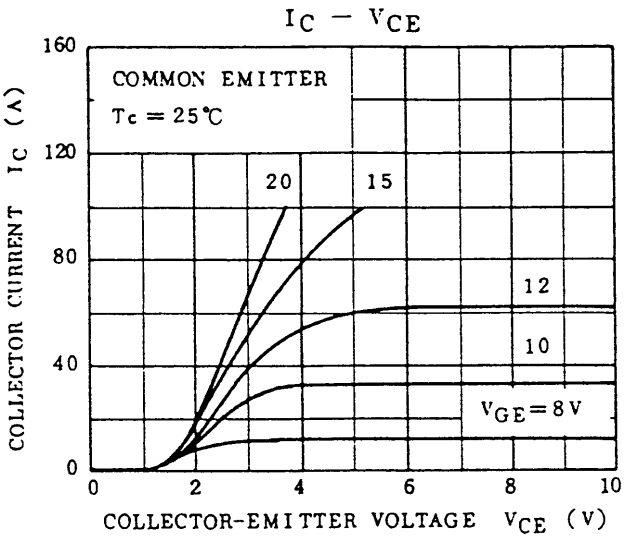
Weight : 9.75g

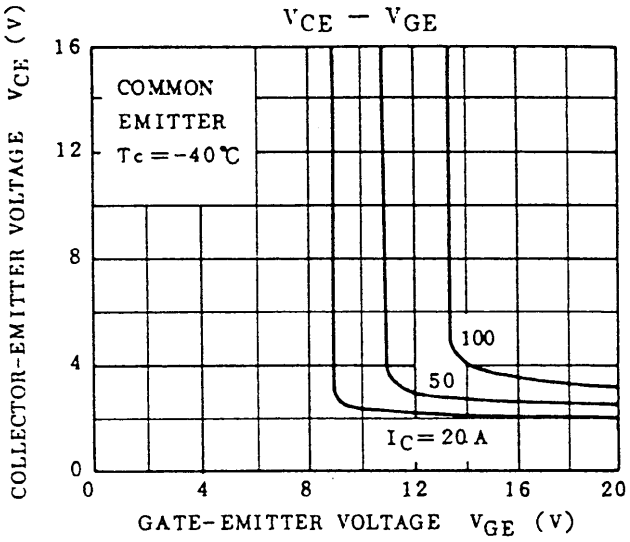
MAXIMUM RATINGS (Ta=25°C)

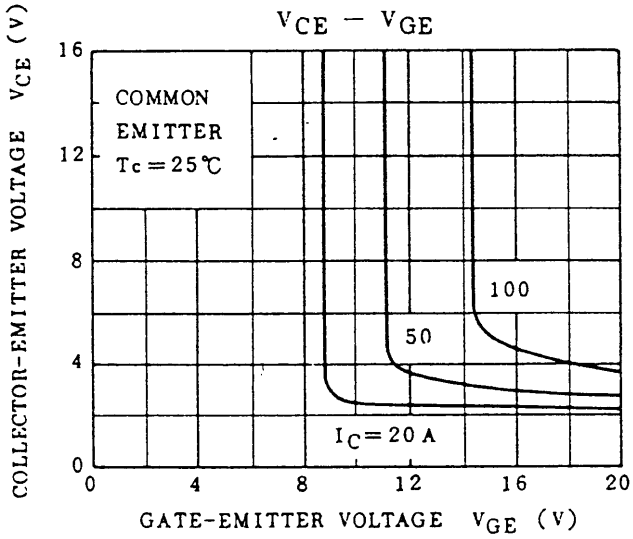
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	±20	V
Collector Current	DC	I_C	50	A
	1ms	I_{CP}	100	
Collector Power Dissipation (Tc=25°C)		P_C	200	W
Junction Temperature		Tj	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C
Screw Torque		–	0.8	Nm

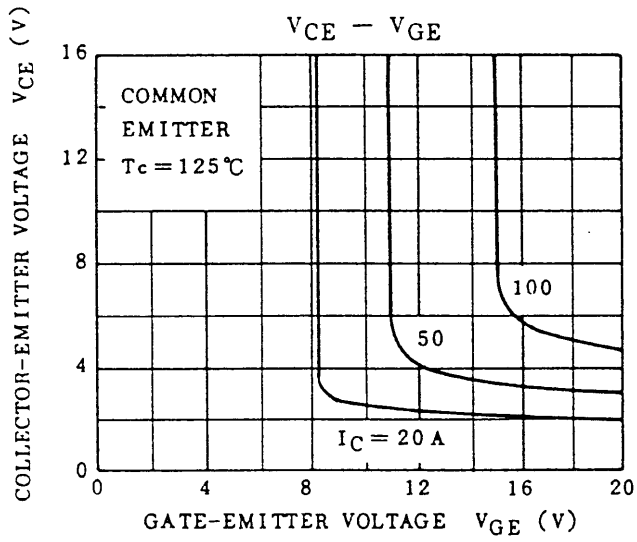
ELECTRICAL CHARACTERISTICS (Ta=25°C)

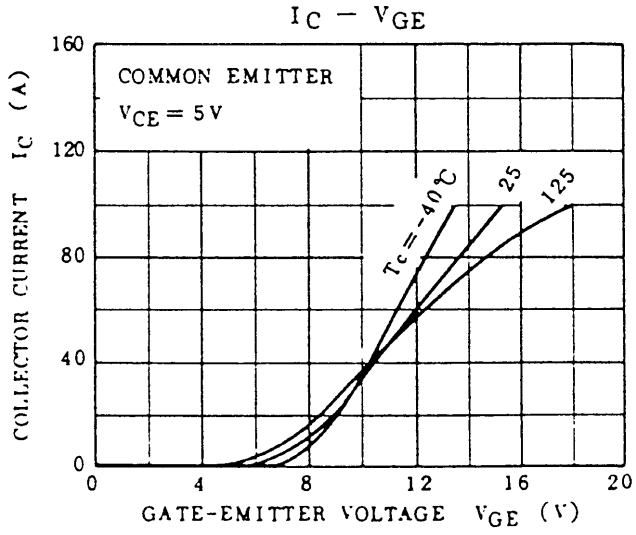
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	V_{GE}=±20V, V_{CE}=0	–	–	±500	nA
Collector Cut-off Current		I_{CES}	V_{CE}=600V, V_{GE}=0	–	–	1.0	mA
Collector-Emitter Breakdwon Voltage		$V_{(BR)CES}$	I_C=2mA, V_{GE}=0	600	–	–	V
Gate-Emirter Cut-off Voltage		$V_{GE(off)}$	I_C=50mA, V_{CE}=5V	3.0	–	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=50A, V_{GE}=15V	–	3.0	4.0	V
Input Capacitance		Cies	V_{CE}=10V, V_{GE}=0, f=1MHz	–	3500	–	pF
Switching Time	Rise Time	t_r		–	0.3	0.6	μs
	Turn-on Time	t_{on}		–	0.4	0.8	
	Fall Time	t_f		–	0.15	0.35	
	Turn-off Time	t_{off}		–	0.50	1.00	
Thermal Resistance		$R_{th(j-c)}$	–	–	–	0.625	°C/W

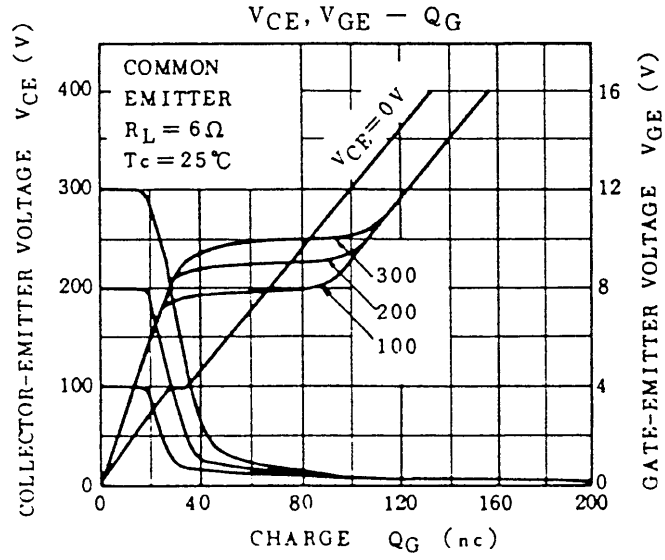

IC – VCE
COMMON EMITTER
Tc = 25℃
20
15
12
10
VGE = 8 V
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)
0
40
80
120
160
0
2
4
6
8
10


VCE – VGE
COMMON
EMITTER
Tc = -40℃
100
50
IC = 20 A
COLLECTOR-EMITTER VOLTAGE VCE (V)
GATE-EMITTER VOLTAGE VGE (V)
0
4
8
12
16
20

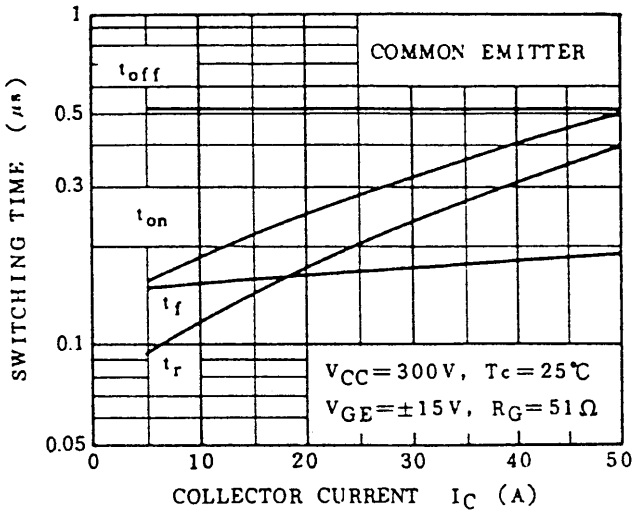

VCE – VGE
COMMON
EMITTER
Tc = 25℃
100
50
IC = 20 A
COLLECTOR-EMITTER VOLTAGE VCE (V)
GATE-EMITTER VOLTAGE VGE (V)
0
4
8
12
16
20


VCE – VGE
COMMON
EMITTER
Tc = 125℃
100
50
IC = 20 A
COLLECTOR-EMITTER VOLTAGE VCE (V)
GATE-EMITTER VOLTAGE VGE (V)
0
4
8
12
16
20

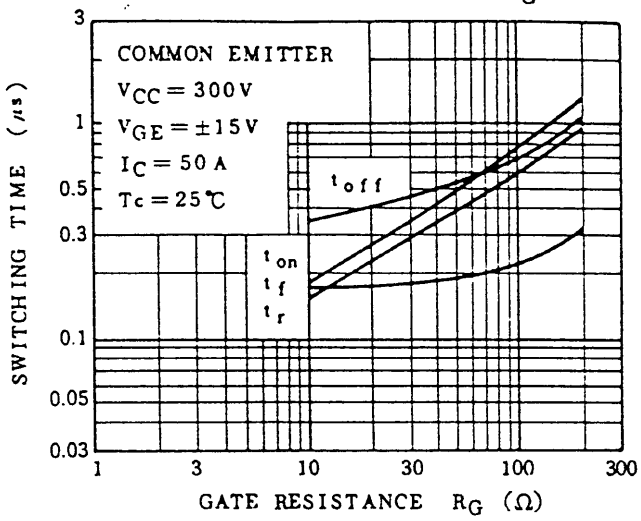

IC – VGE
COMMON EMITTER
VCE = 5 V
Tc = -40℃
25
125
COLLECTOR CURRENT IC (A)
GATE-EMITTER VOLTAGE VGE (V)
0
40
80
120
160
0
4
8
12
16
20


VCE, VGE – QG
COMMON
EMITTER
RL = 6Ω
Tc = 25℃
VCE = 0 V
300
200
100
COLLECTOR-EMITTER VOLTAGE VCE (V)
GATE-EMITTER VOLTAGE VGE (V)
CHARGE QG (nc)
0
100
200
300
400
0
4
8
12
16
0
40
80
120
160
200

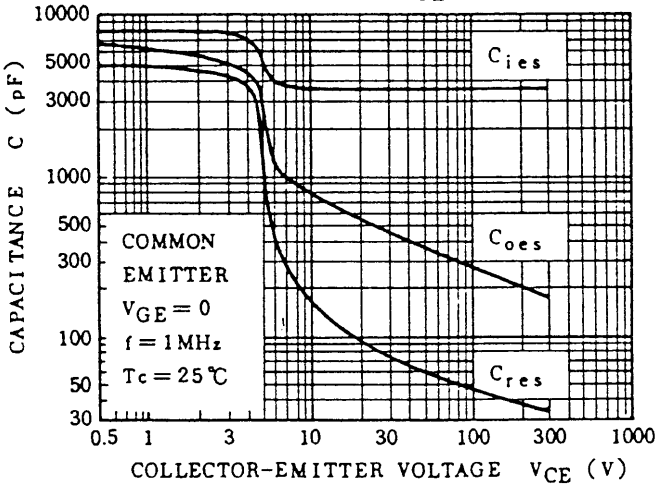
SWITCHING TIME — I_C



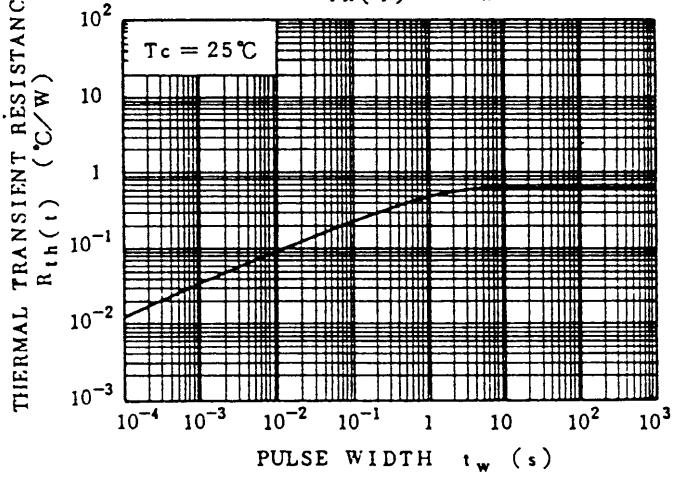
SWITCHING TIME — R_G



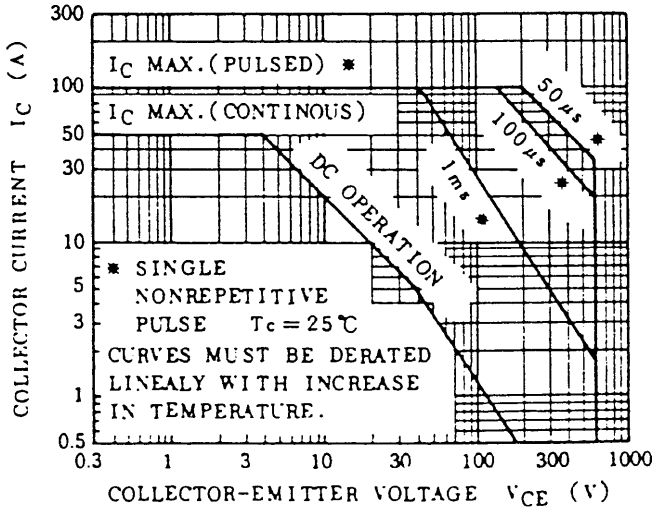
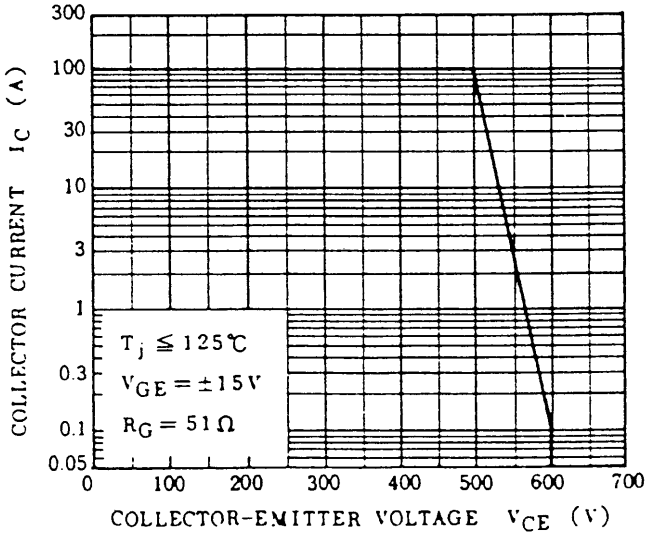
C — V_{CE}



$R_{th(t)}$ — t_w



SAFE OPERATING AREA



REVERSE BIAS SOA