

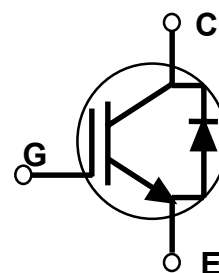
FEATURES

- * High Speed Switching
- * Low Saturation Voltage
: $V_{CE(sat)} = 3.7 \text{ V typ. at } I_C=40\text{A}$
- * High Input Impedance
- * Built in Fast Recovery Diode
: $V_F=1.7 \text{ at } I_F=10\text{A, } t_{rr}=170\text{nS}$

APPLICATIONS

- * Home Appliance
 - Induction Heater
 - IH JAR
 - Micro Wave Oven

TO-264



ABSOLUTE MAXIMUM RATINGS

Symbol	Characteristics		Rating	Unit
V _{CES}	Collector-Emitter Voltage		1500	V
V _{GE}	Gate - Emitter Voltage		±25	V
I _C	Continuous Collector Current	T _c = 25℃	40	A
		T _c = 100℃	20	
I _{CM (1)}	Pulsed Collector Current		120	A
P _D	Maximum Power Dissipation	T _c = 25℃	200	W
		T _c = 100℃	80	
T _j	Operating Junction Temperature		-55 ~ 150	℃
T _{stg}	Storage Temperature Range			
T _L	Soldering maximum lead temperature (1/8'' from case for 10 seconds)		300	℃

Notes: (1) Repetitive rating : Pulse with limited by max. junction temperature

ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$)

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
BV_{CES}	C - E Breakdown Voltage	$I_C = 250\mu\text{A}$, $V_{GE} = 0\text{V}$	1500	-	-	V
$V_{GE(th)}$	G - E threshold voltage	$I_C = 40\text{mA}$, $V_{CE} = 10\text{V}$	3.5	-	7.5	V
I_{CES}	Collector cutoff Current	$V_{CE} = V_{CES}$, $V_{GE} = 0\text{V}$	-	-	250	μA
I_{GES}	G - E leakage Current	$V_{GE} = V_{GES}$, $V_{CE} = 0\text{V}$	-	-	100	nA
$V_{CE(sat)}$	Collector to Emitter saturation voltage	$V_{GE} = 15\text{V}$, $I_C = 40\text{A}$	-	3.7	4.7	V
Cies	Input capacitance	$V_{GE} = 0\text{V}$, $f = 1\text{MHz}$ $V_{CE} = 10\text{V}$	-	4000	-	pF
Coes	Output capacitance		-	700	-	pF
Cres	Reverse transfer capacitance		-	600	-	pF
ton	Turn on time	$V_{CC} = 600\text{V}$, $I_C = 40\text{A}$ $V_{GE} = 15\text{V}$ $R_G = 51\Omega$ Resistive load	-	700	1100	nS
tr	Rise time		-	600	1000	nS
toff	Turn off time		-	500	1100	nS
tf	Fall time		-	180	400	nS
V_{EC}	Emitter-Collector Voltage	$I_E = 10\text{A}$	-	1.3	1.8	V
trr	Reverse recovery time	$I_E = 10\text{A}$, $di/dt = -200\text{A}/\mu\text{S}$	-	170	300	nS

THERMAL RESISTANCE

Symbol	Characteristics	Min	Typ	Max	Units
$R_{\theta JC}$	Junction-to-Case (IGBT)	-	-	0.625	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case (Diode)	-	-	0.83	$^{\circ}\text{C}/\text{W}$

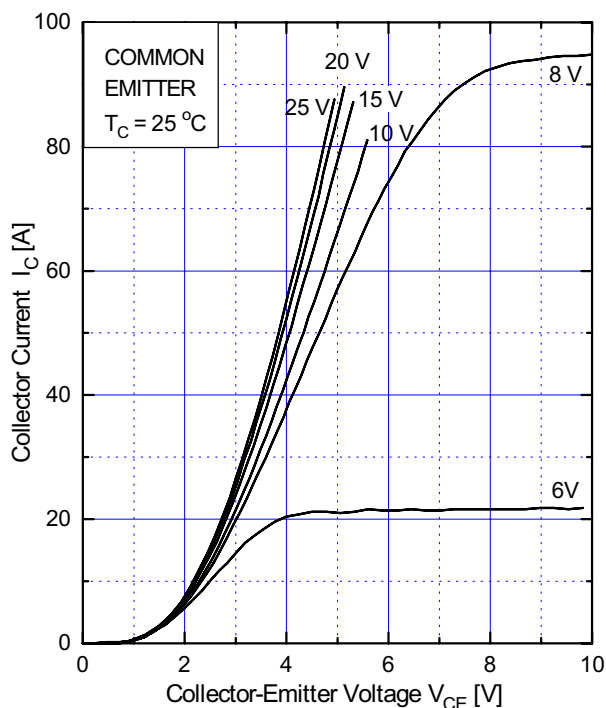


Fig.1 Typical Output Characteristics

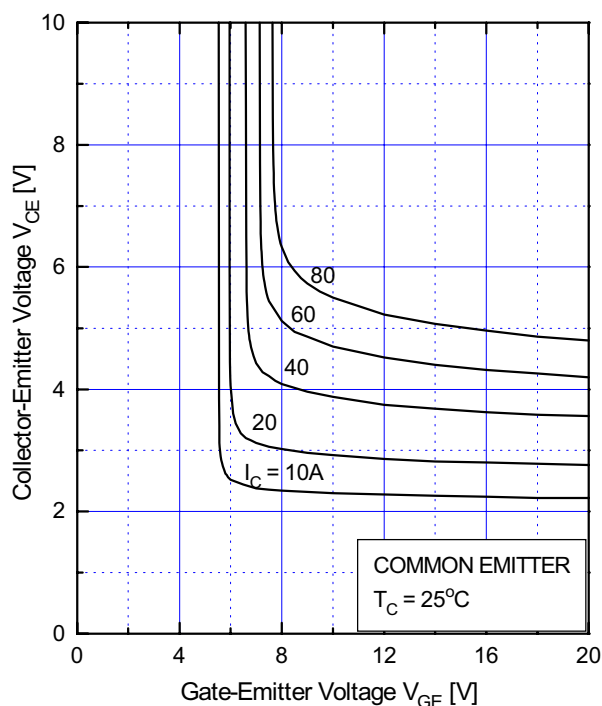


Fig.2 Collector-Emitter Saturation Voltage Characteristics

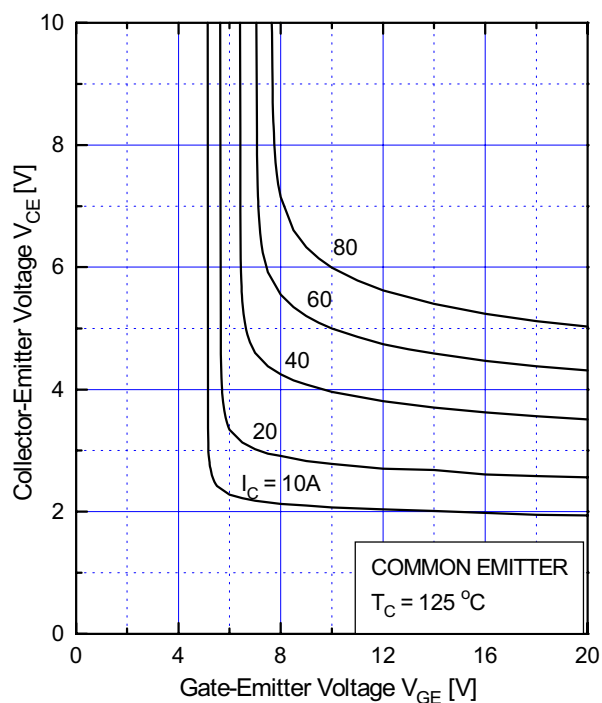


Fig.3 Collector-Emitter Saturation Voltage Characteristics

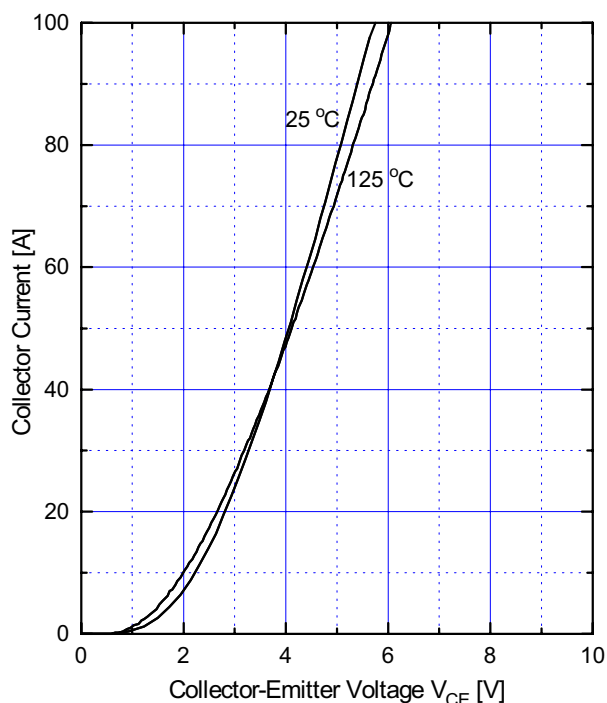


Fig.4 Collector-Emitter Saturation Voltage Characteristics

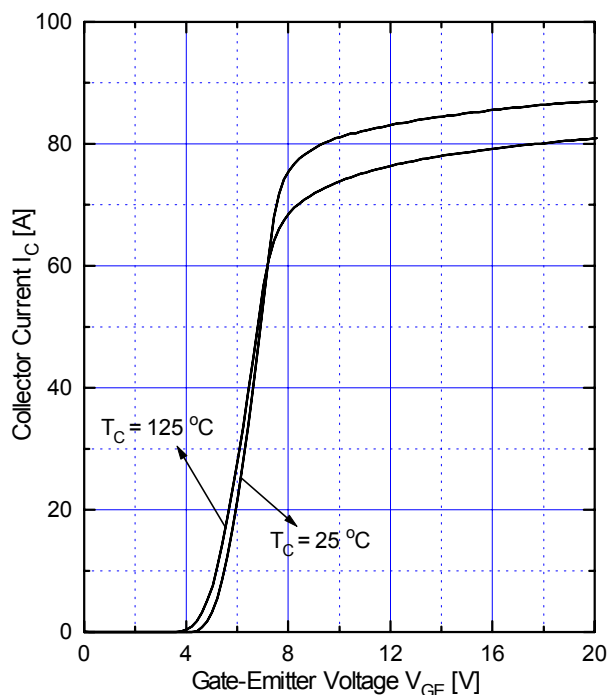


Fig.5 Collector Current vs. Gate Voltage

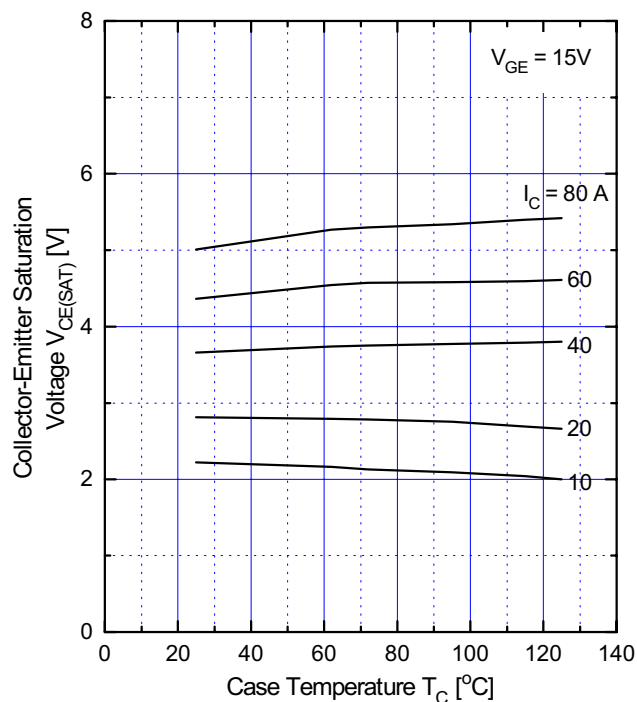


Fig.6 Collector-Emitter Voltage vs Case Temperature

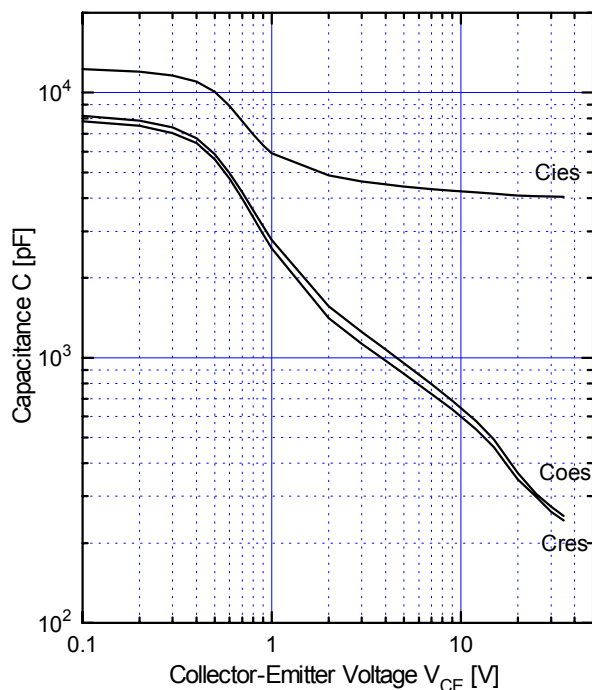


Fig.7 Typical Capacitance vs. Collector-Emitter Voltage

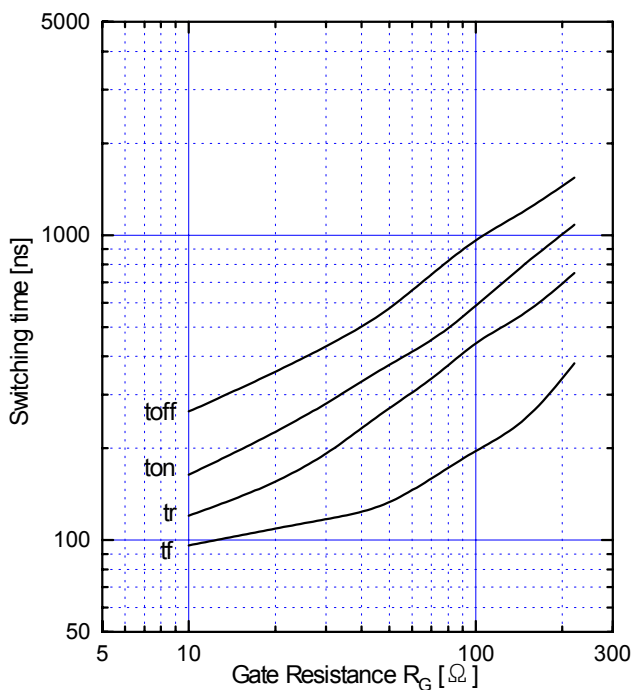


Fig.8 Typical Switching Time vs. Gate Resistance

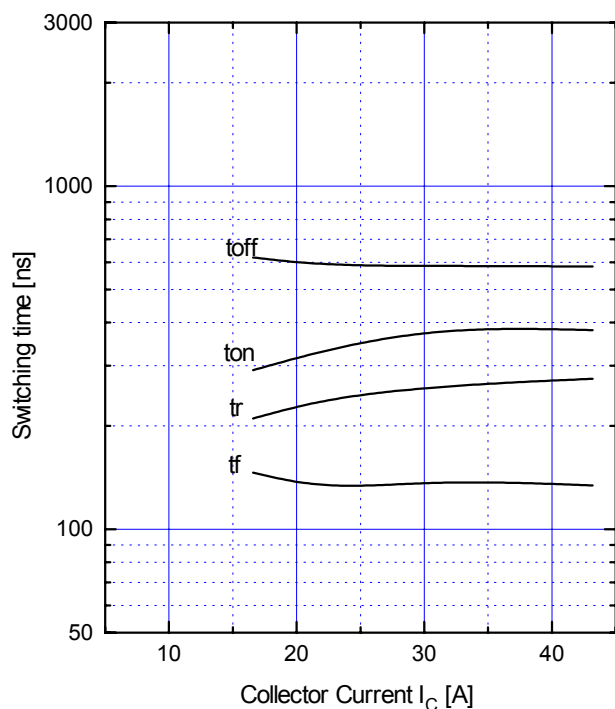


Fig.9 Typical Switching Time vs. Collector Current

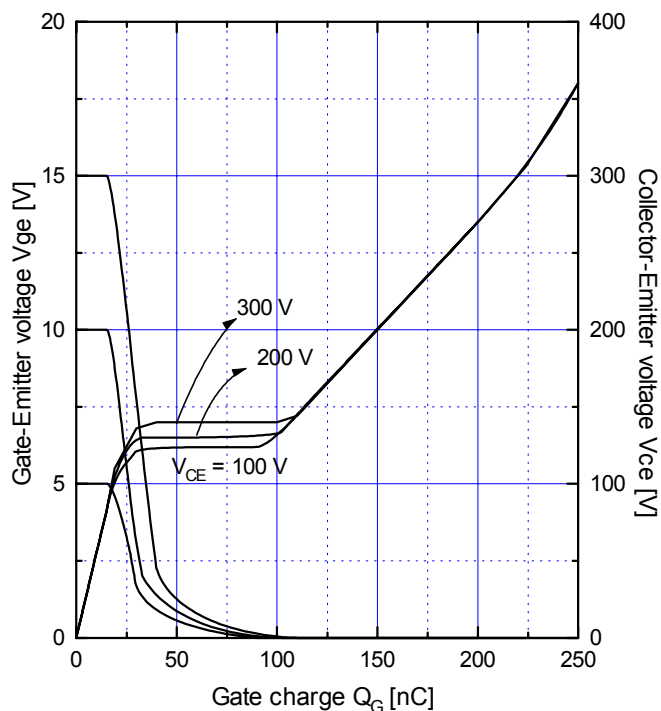


Fig.10 Typical Gate Charge

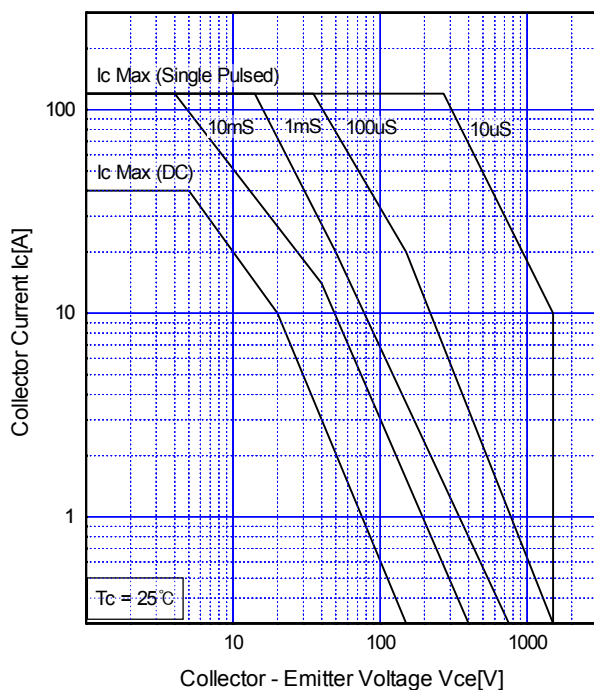


Fig.11 Safe Operating Area

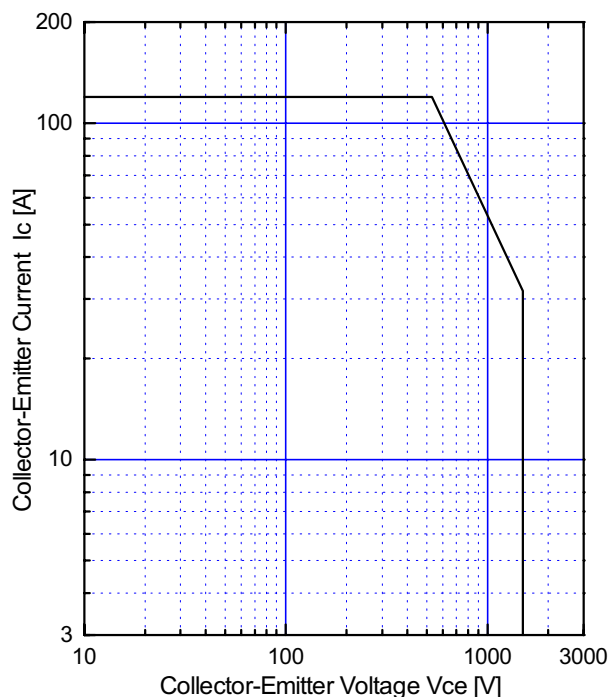


Fig.12 Reverse Bias SOA

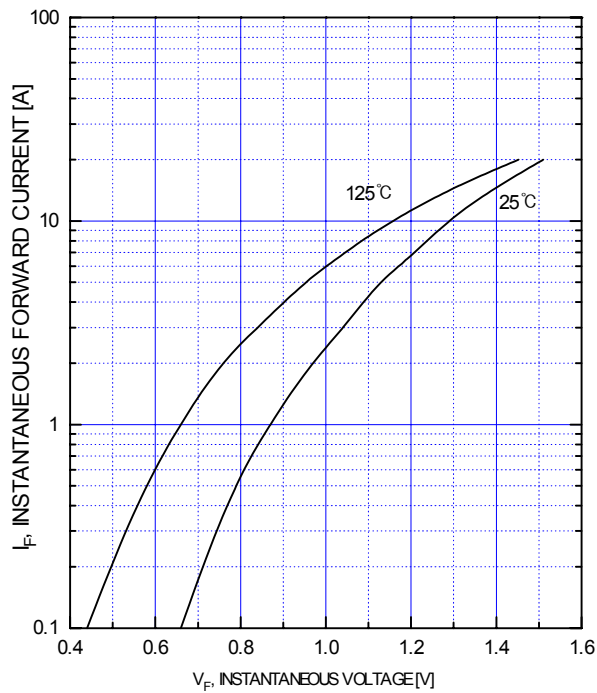


Fig.13 Emitter - Collector Saturation
Voltage Characteristics