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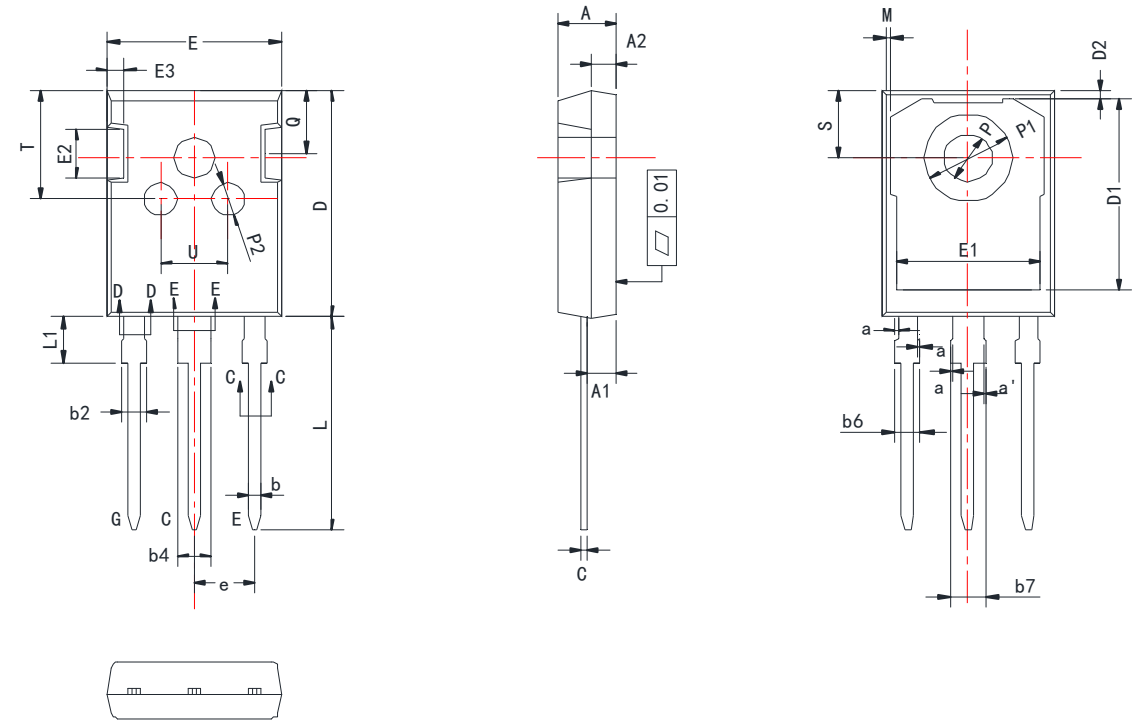
DATA SHEET

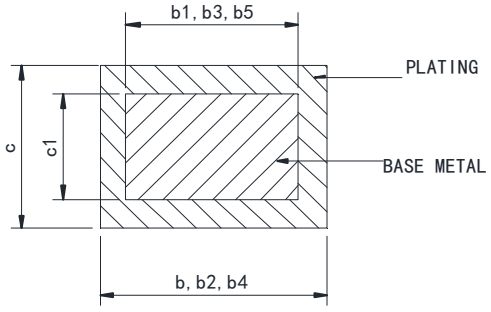
PART NO. : PC75H065AB

REV : A / 0

CUSTOMER'S APPROVAL : _____ DCC : _____

Package Dimensions





SECTION C-C, D-D&E-E

Common dimensions(mm)							
Symbol	**Min**	**Typ**	**Max**	**Symbol**	**Min**	**Typ**	**Max**
A	4.83	-	5.21	D1	16.25	-	17.65
A1	2.27	2.41	2.54	D2	0.95	1.17	1.35
A2	1.85	-	2.16	E	15.7	15.9	16.13
b	1.07	-	1.33	E1	13.1	-	14.15
b1	-	-	-	2*E2	3.68	-	5.1
b2	1.9	-	2.41	e	5.4TYP		
b3	-	-	-	L	19.8	19.92	20.3
b4	2.87	-	3.38	L1	4.1	-	4.47
b5	-	-	-	P	3.51	3.6	3.65
c	0.55	-	0.68	P1	-	-	7.4
c1	-	-	-	S	6.15BSC		
D	20.9	21.0	21.1	Q	5.49	5.7	6.0

Trench Field-Stop Technology IGBT

PC75H065AB

REV:A / 0

Features

650V, 75A

$V_{CE(sat)(typ.)}$ =1.80V@V_{GE}=15V, I_C=75A

Maximum Junction Temperature 150℃

Pb-free Lead Plating; RoHS Compliant

Applications

Solar Converters

Uninterrupted Power Supply

Welding Converters

Mid to High Range Switching Frequency Converters

Key Performance and Package Parameters

V_{CE}	I_C	V_{CEsat}, T_{vj}=25℃	T_{vjmax}
650V	75A	1.80V	150℃

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage	650	V
V_{GES}	Gate-Emitter Voltage	±20	V
I_C	Continuous Collector Current (T_C=25℃)	110	A
	Continuous Collector Current (T_C=100℃)	75	A
I_{CM}	Pulsed Collector Current (Note 1)	300	A
P_D	Maximum Power Dissipation (T_C=25℃)	385	W
	Maximum Power Dissipation (T_C=100℃)	192	W
T_J	Operating Junction Temperature Range	-40 to 150	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case for IGBT	0.39	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case for Diode	0.41	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	40	℃/W

Electrical Characteristics (Tc=25℃ unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CES}	Collector-Emitter Breakdown Voltage	V_{GE}=0V, I_C=200uA	650	---	---	V
I_{CES}	Collector-Emitter Leakage Current	V_{CE}=650V, V_{GE}=0V	---	---	75	uA
I_{GES}	Gate Leakage Current, Forward	V_{GE}=20V, V_{CE}=0V	---	---	100	nA
	Gate Leakage Current, Reverse	V_{GE}=-20V, V_{CE}=0V	---	---	100	nA
$V_{GE(th)}$	Gate Threshold Voltage	V_{GE}=V_{CE}, I_C=750uA	3.2		4.8	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE}=15V, I_C=75A, T_j=25℃	---	1.80	2.20	V
		V_{GE}=15V, I_C=75A, T_j=125℃	---	2.05	---	V
Q_G	Total Gate Charge	V_{CC}=520V V_{GE}=15V I_C=75A	---	118	---	nC
$t_{d(on)}$	Turn-on Delay Time	V_{CC}=400V V_{GE}=±15V I_C=75A R_G=8Ω Inductive Load T_C=25℃	---	32	---	ns
t_r	Turn-on Rise Time		---	91	---	ns
$t_{d(off)}$	Turn-off Delay Time		---	152	---	ns
t_f	Turn-off Fall Time		---	129	---	ns
E_{on}	Turn-on Switching Loss		---	1.88	---	mJ
E_{off}	Turn-off Switching Loss		---	2.43	---	mJ
E_{ts}	Total Switching Loss		---	4.31	---	mJ
C_{ies}	Input Capacitance	V_{CE}=25V V_{GE}=0V f =1MHz	---	3781	---	pF
C_{oes}	Output Capacitance		---	455	---	pF
C_{res}	Reverse Transfer Capacitance		---	38	---	pF
SCSOA	Short Circuit Safe Operation Area	V_{GE}=15V, V_{CC}≤400V, $T_{J,start}$≤25℃	10	---	---	uS

Diode Characteristics (TC=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	I_F=75A, T_j=25℃	---	1.55	1.80	V
		I_F=75A, T_j=120℃	---	1.40	---	V
t_{rr}	Diode Reverse Recovery Time	VR=400V IF=75A dIF/dt=500A/us	---	118	---	ns
I_{rr}	Diode peak Reverse Recovery Current		---	8.8	---	A
Q_{rr}	Diode Reverse Recovery Charge		---	610	---	nC

Note1：Repetitive rating, pulse width limited by maximum junction temperature

Typical Characteristics

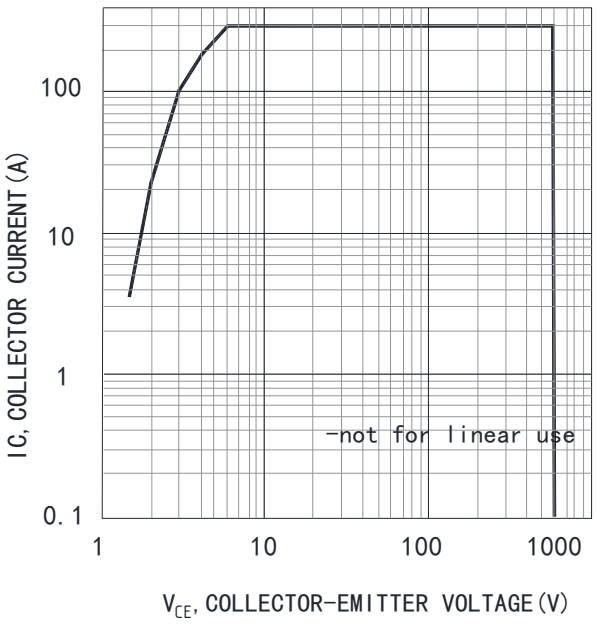


Fig. 1 Forward bias safe operating area (D=0, T_c=25℃, Tvj≤175℃; V_{GE}=15V. Recommended use at V_{GE}≥7.5V)

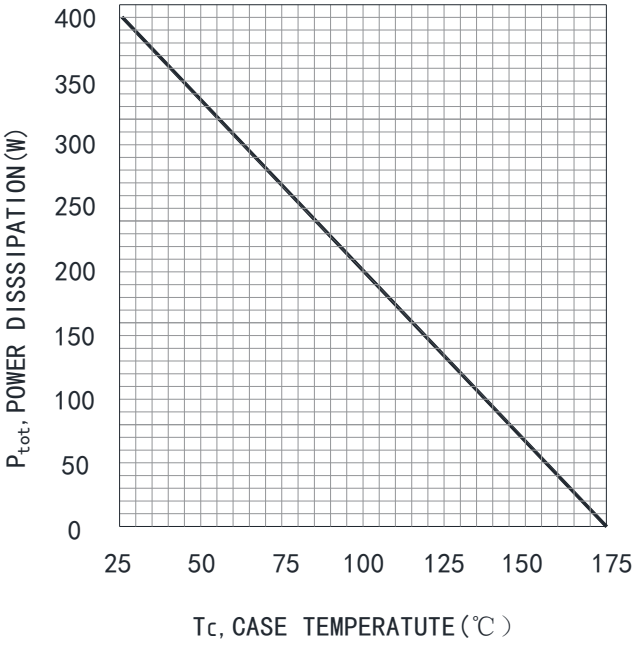


Fig. 2 Power dissipation as a function of case temperature (T_{vj}≤175℃)

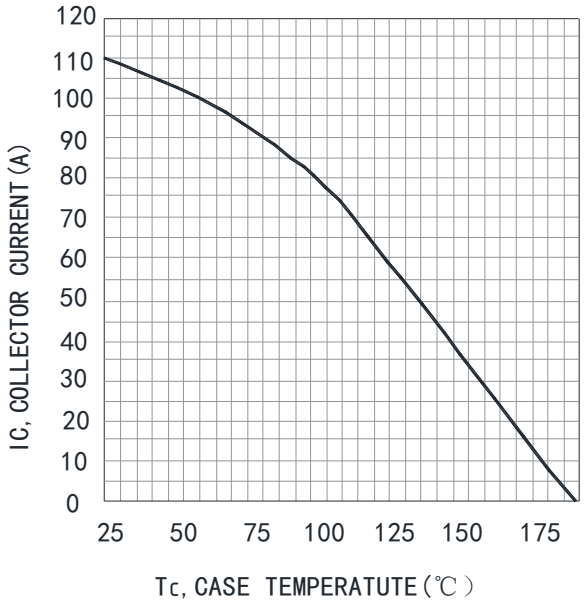


Fig. 3 Collector current as a function of case temperature (V_{GE}≥15V,T_{vj}≤175℃)

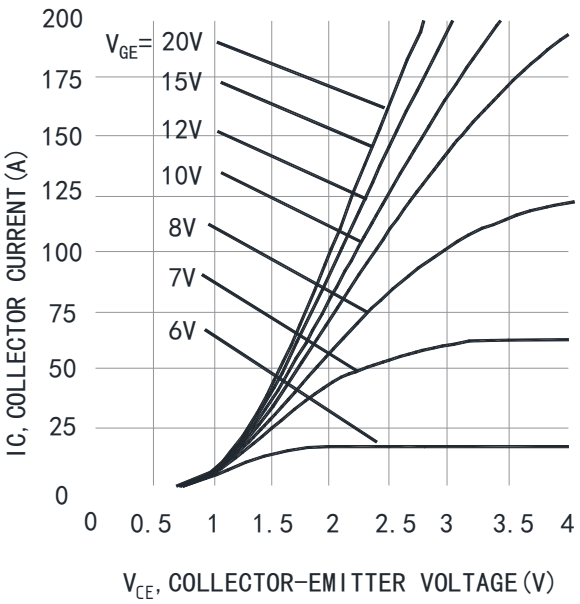


Fig. 4 Typical output characteristic (T_{vj}=25℃)

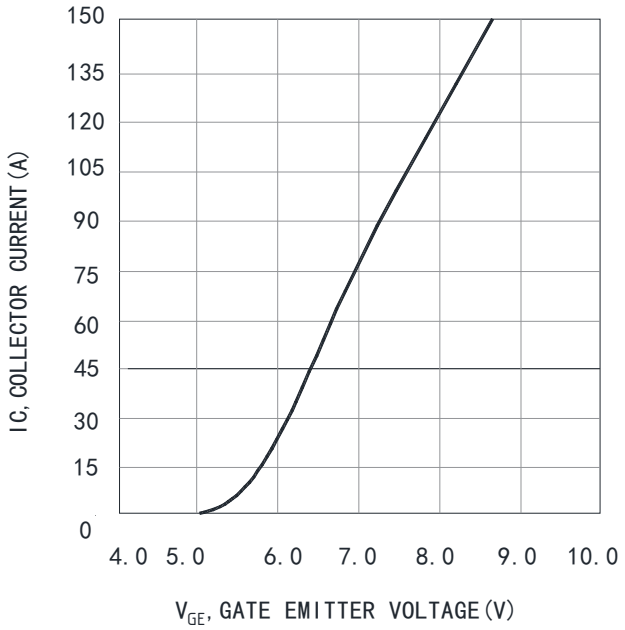


Fig. 5 Typical transfer characteristics (V_{CE}=20V)

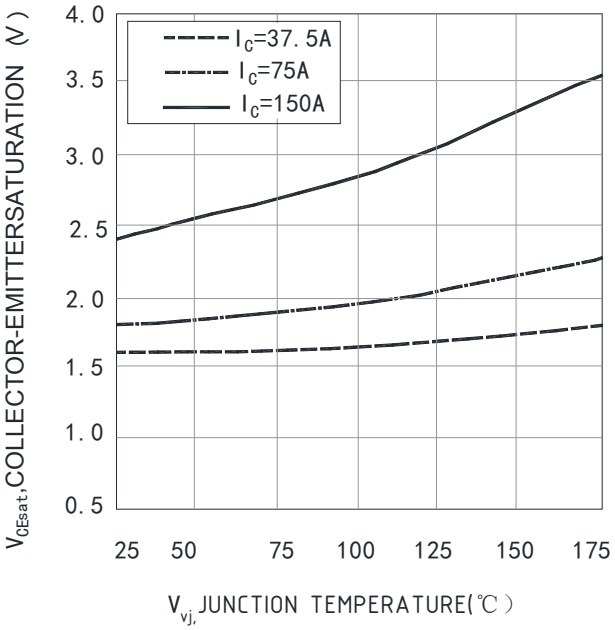


Fig. 6 Typical collector-emitter saturation voltage as a function of junction temperature (V_{GE}=15V)

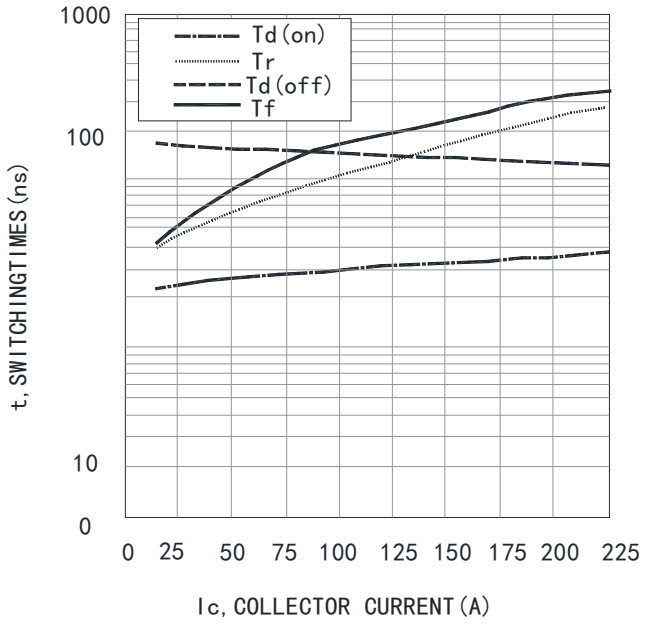


Fig. 7 Typical switching times as a function of collector current (inductive load, T_{vj}=25℃, V_{CE}=400V, V_{GE}=15/0V, r_G=8Ω)

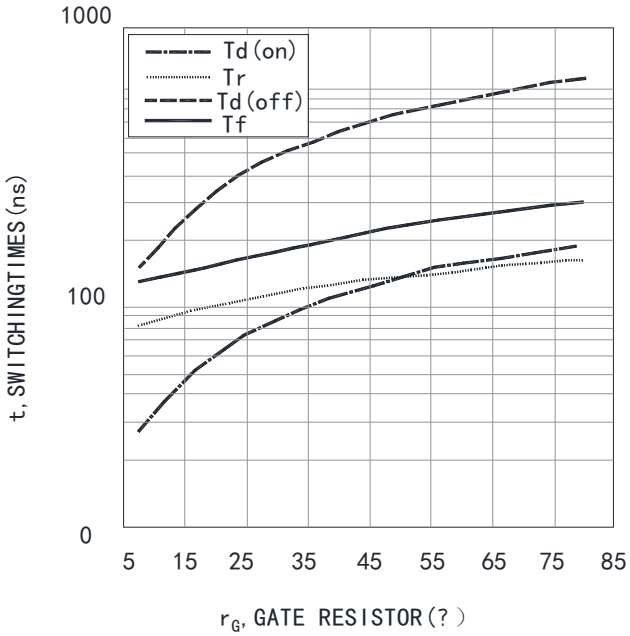


Fig. 8 Typical switching times as a function of gate resistance (inductive load, T_{vj}=25℃, V_{CE}=400V, V_{GE}=15/0V, I_C=75A)

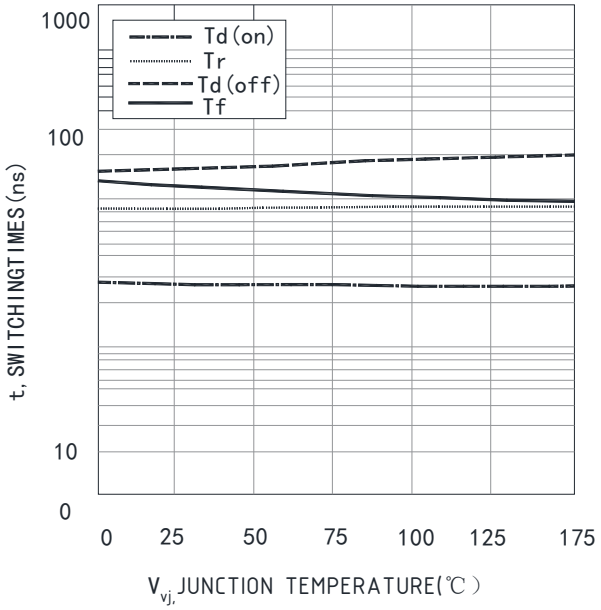


Fig. 9 Typical switching times as a function of junction temperature (inductive load, V_{CE}=400V, V_{GE}=15/0V, I_C=75A, r_G=8Ω)

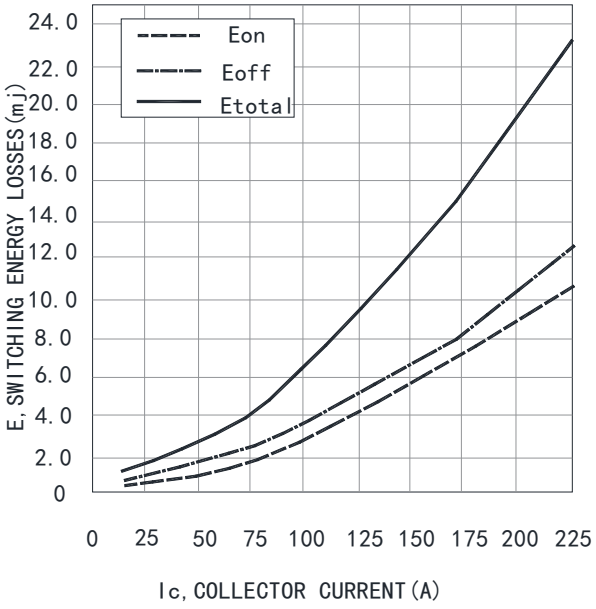


Fig. 10 Typical switching energy losses as a function of collector current (inductive load, T_{vj}=25℃, VCE=400V, VGE=15/0V,

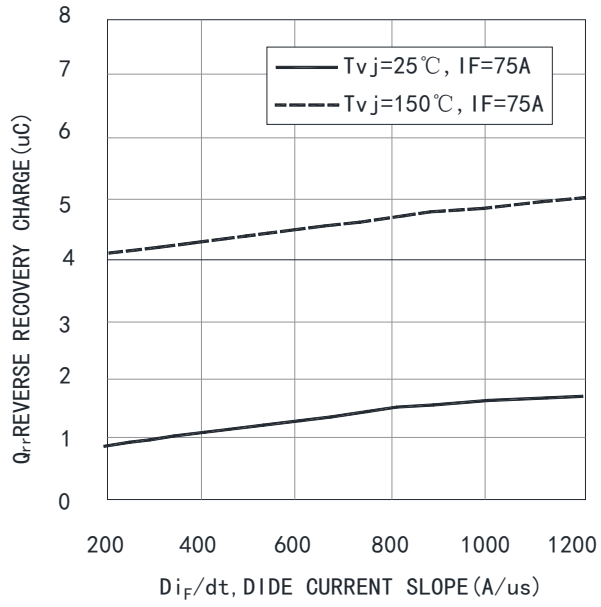


Fig. 11 Typical reverse recovery charge as a function of diode current slope (V_R=400V)

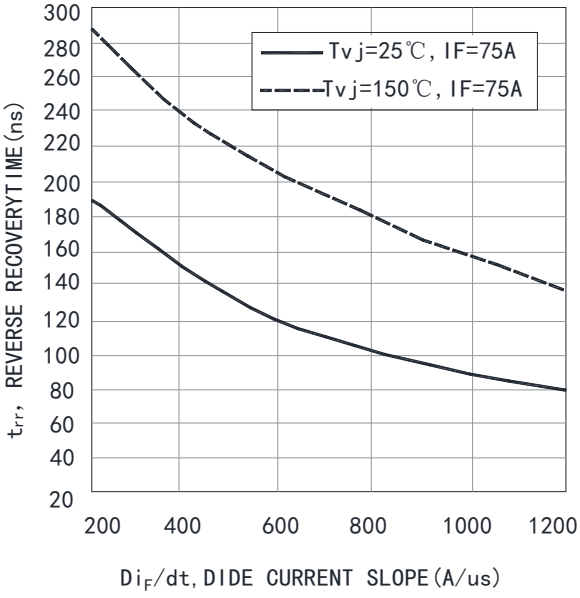


Fig. 12 Typical reverse recovery time as a function of diode current slope (V_R=400V)

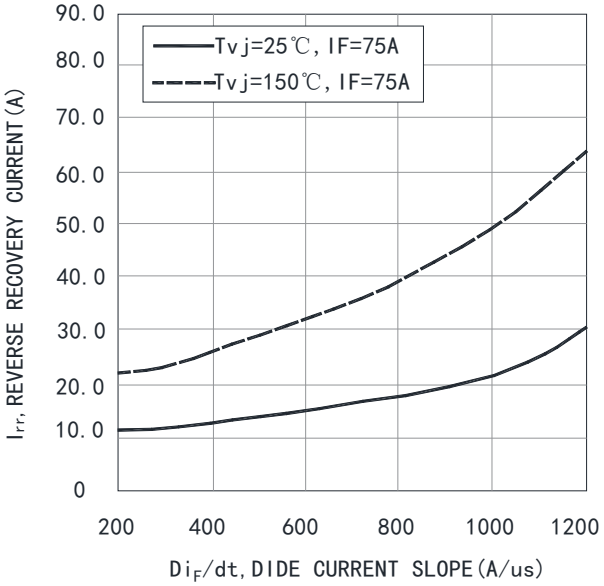


Fig. 13 Typical reverse recovery current as a function of diode current slope (V_R=400V)

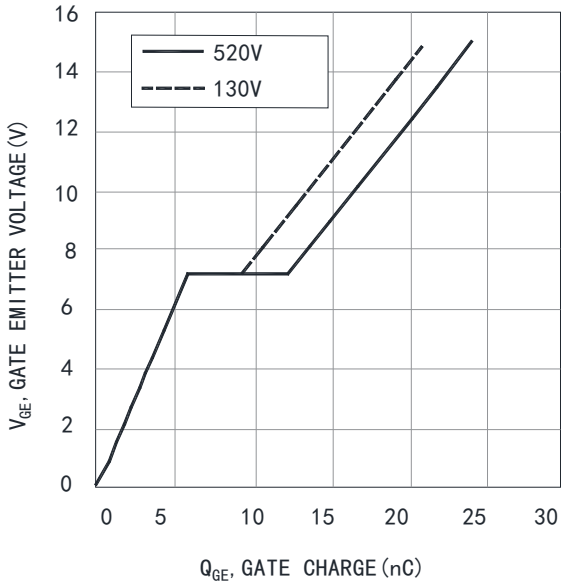


Fig. 14 Typical gate charge (I_C=75A)

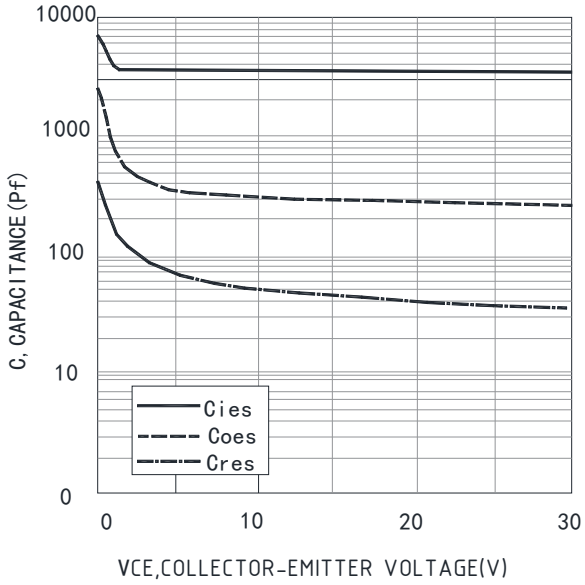


Fig. 15 Typical capacitance as a function of collector-emitter voltage (VGE=0V, f=1MHz)

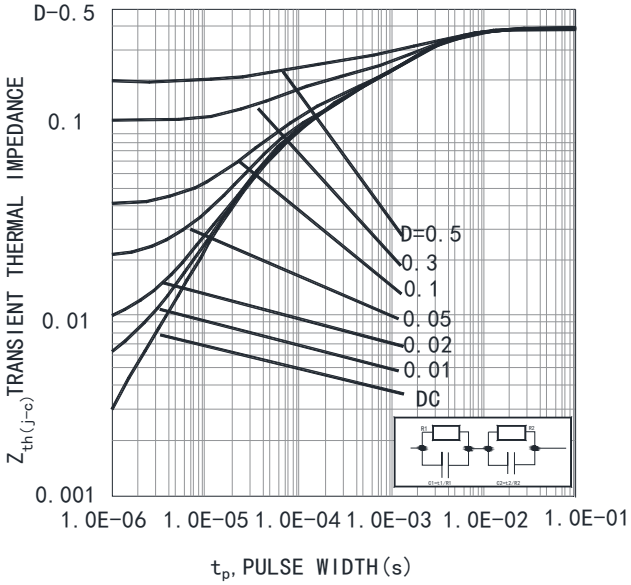


Fig. 16 IGBT transient thermal impedance (D=tp/T)

● PART NO. SYSTEM :

P C 15 H 120 A C