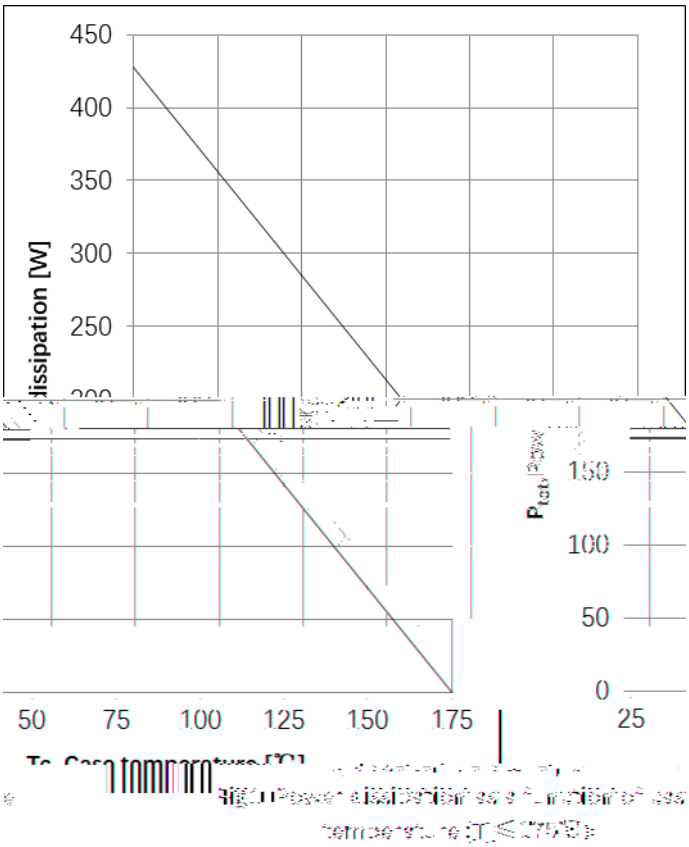
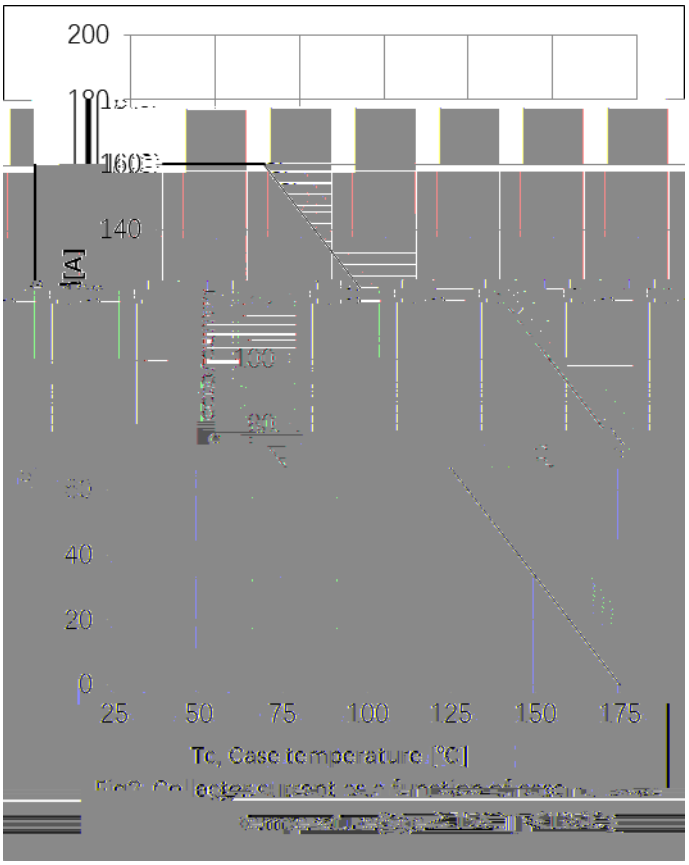
Electrical Characteristics of the IGBT T_j= 25 unless otherwise specified

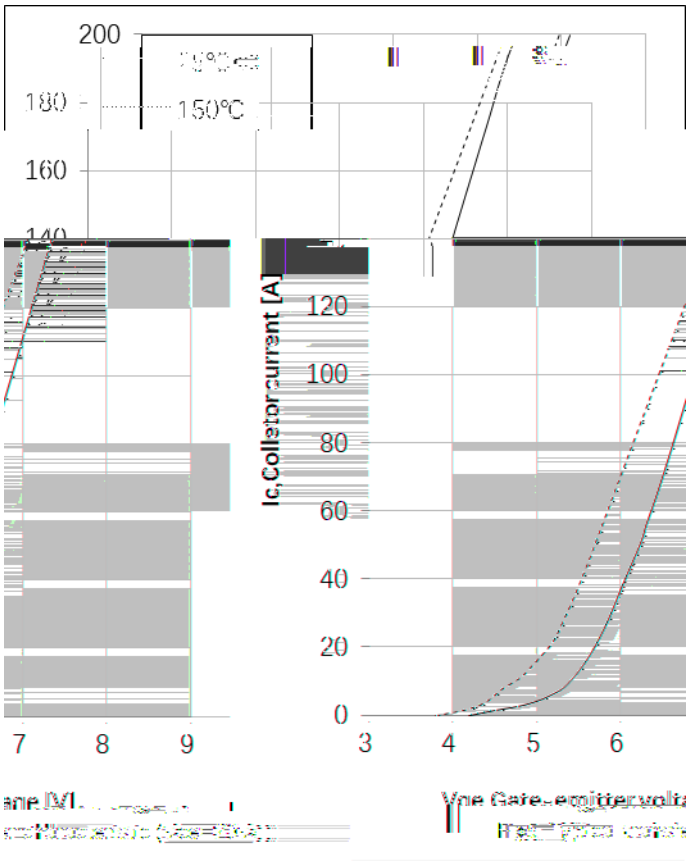
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Collector-Emitter Breakdown Voltage	BV_{CES}	V_{GE}=0V, I_C=250μA	650		-	V
Gate Threshold Voltage	$V_{GE(th)}$	V_{GE}=V_{CE}, I_C=1.20mA	.25	3.75	4. 5	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=100A T_j=25°C, T_j=125°C T_j=150°C				

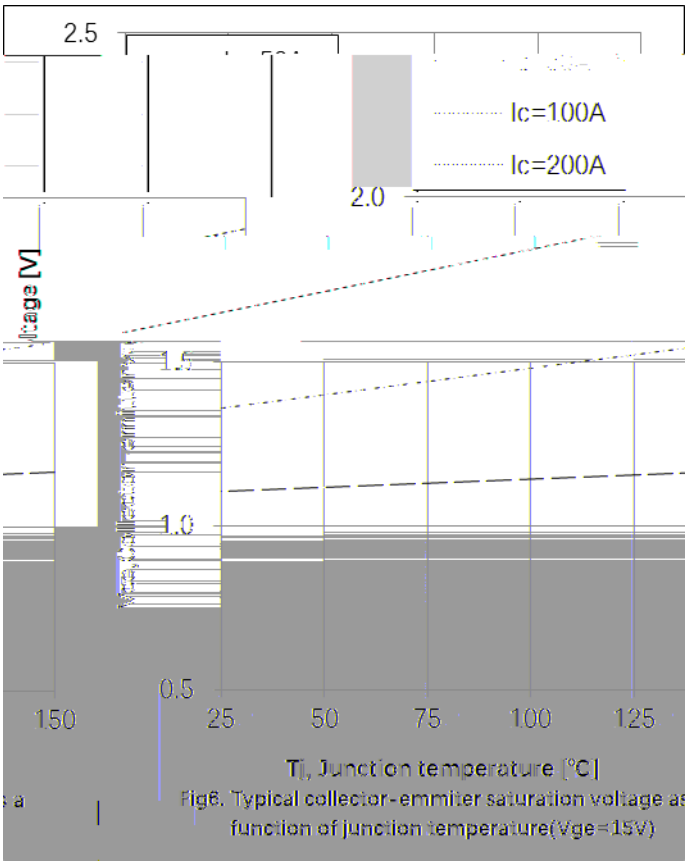
Electrical Characteristics of the Diode T_j= 25 unless otherwise specified

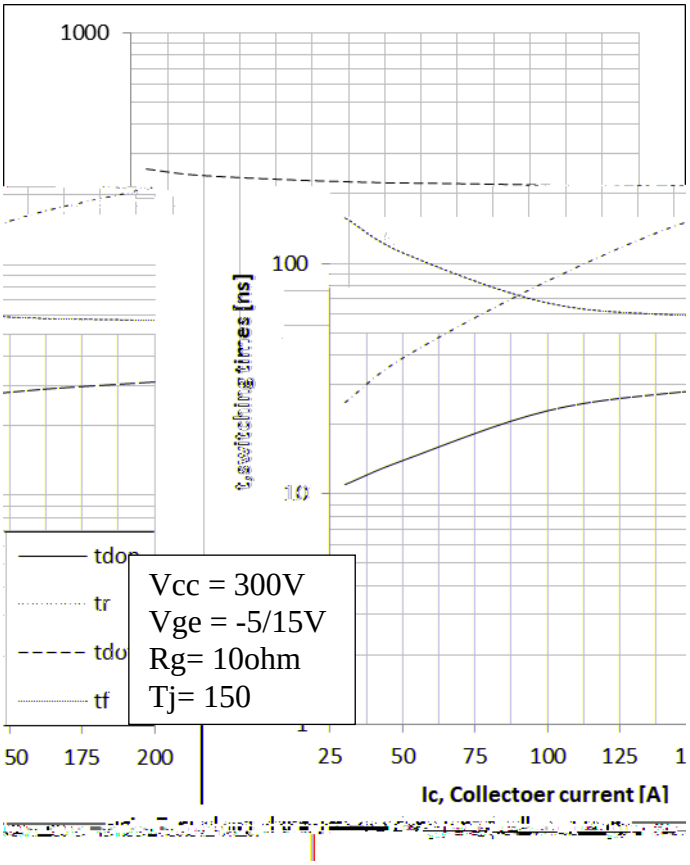
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						

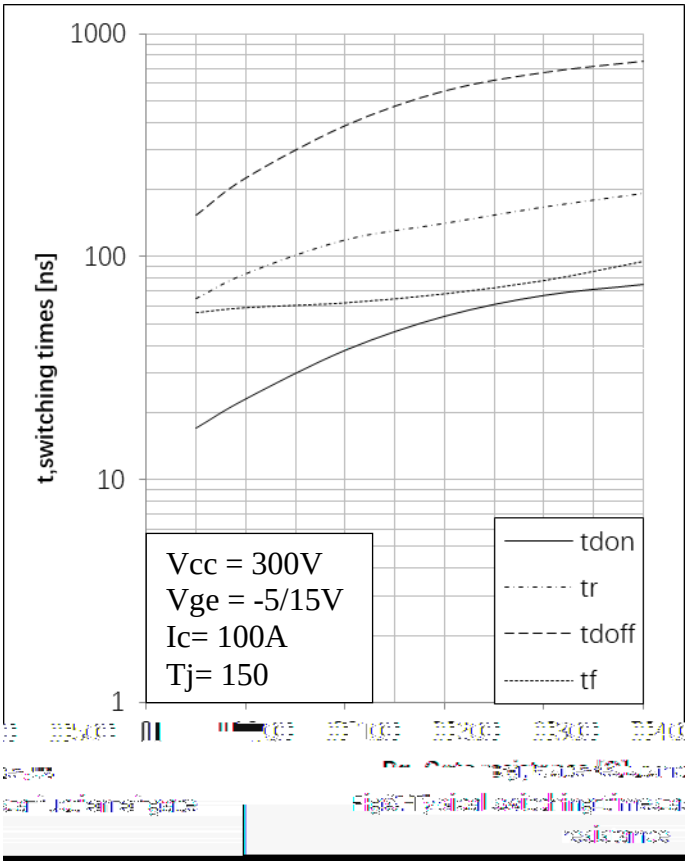

450
400
350
300
250
dissipation [W]
150
100
50
0
50
75
100
125
150
175
25

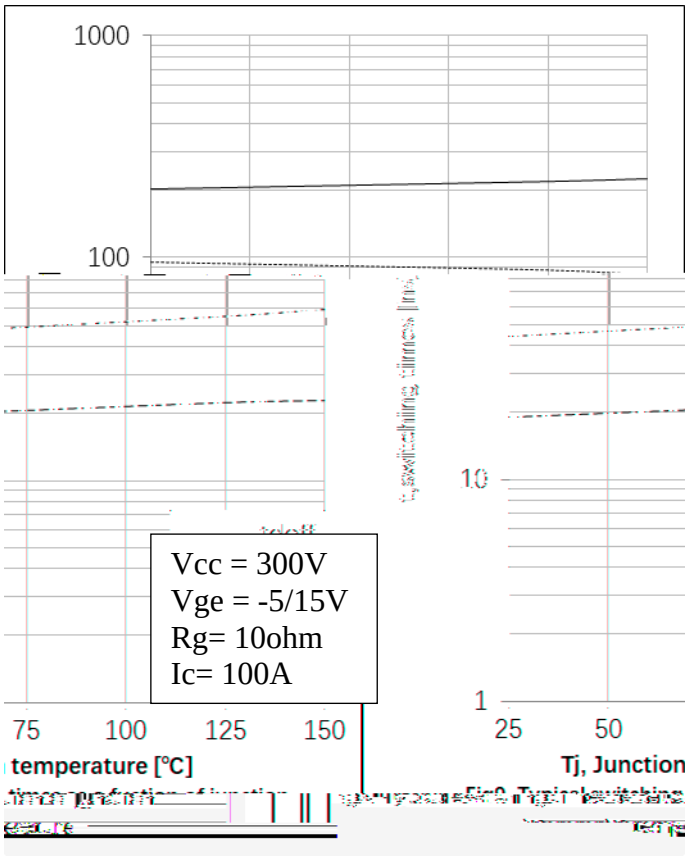

200
140
[A]
40
20
0
25
50
75
100
125
150
175
Tc, Case temperature [°C]

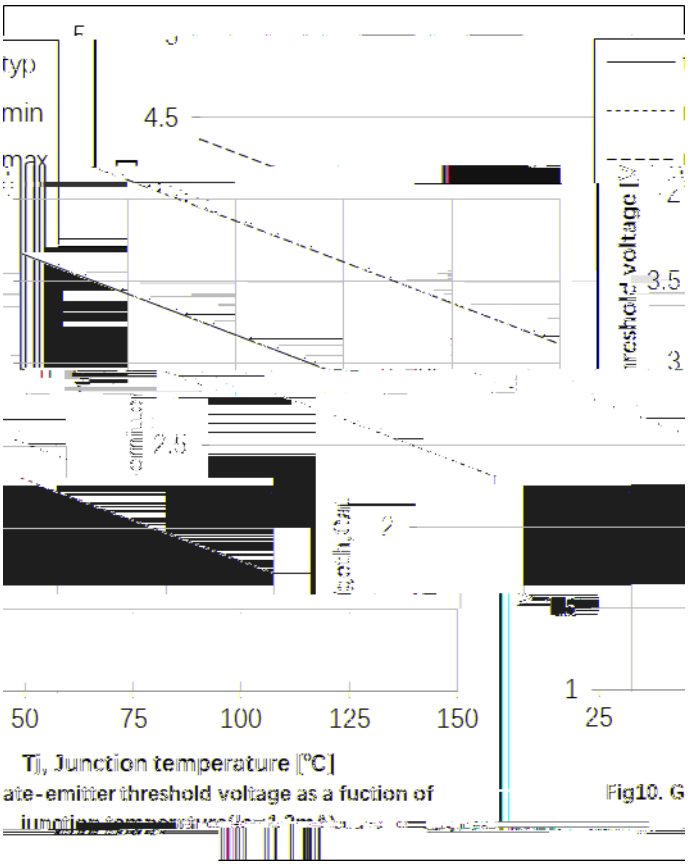

200
180
150°C
160
140
120
100
80
60
40
20
0
Ic, Collector current [A]
7
8
9
3
4
5
6

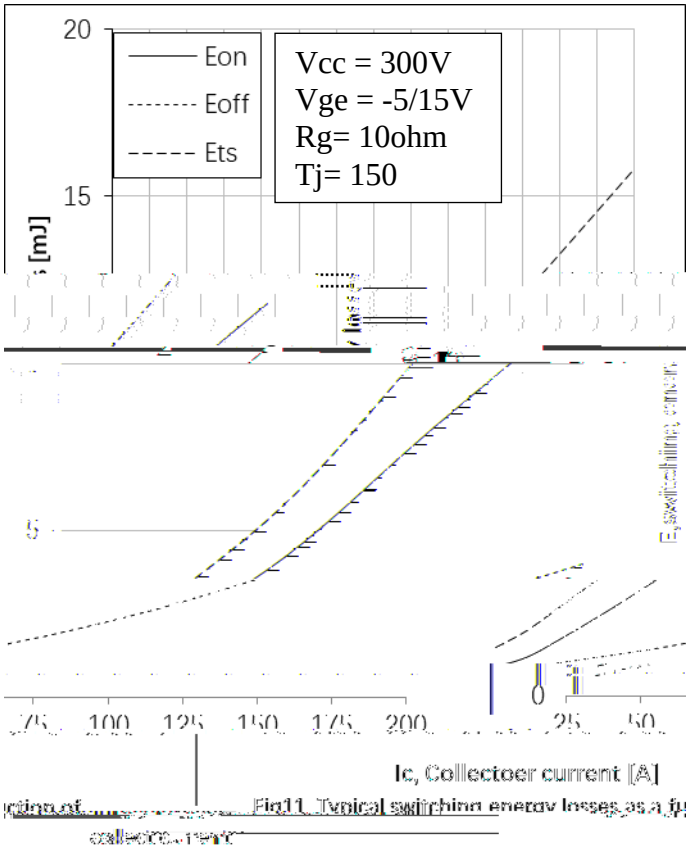

2.5
Ic=100A
Ic=200A
2.0
1.5
1.0
0.5
150
25
50
75
100
125
Tj, Junction temperature [°C]
Fig6. Typical collector-emmiter saturation voltage as
function of junction temperature(Vge=15V)

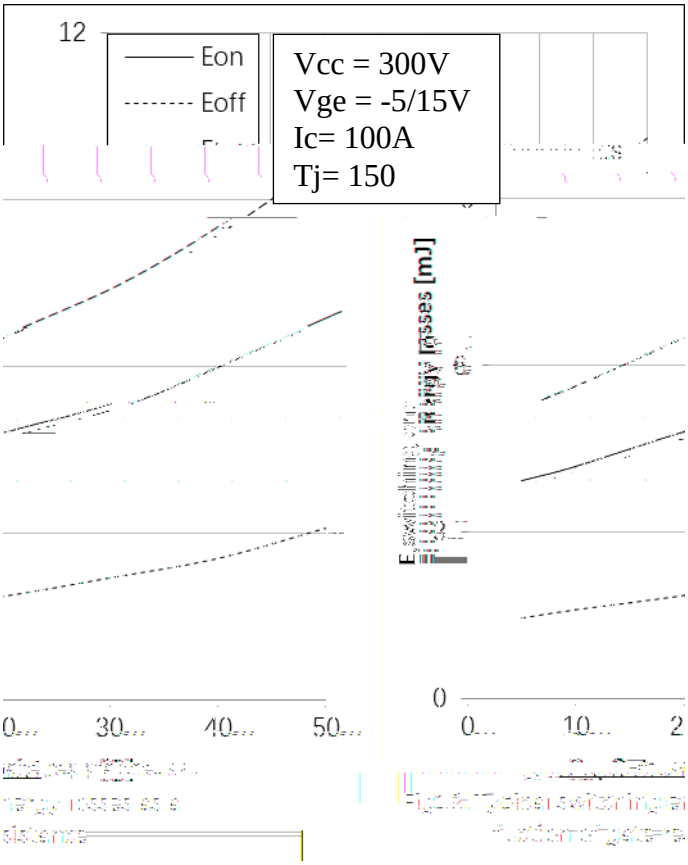

1000
100
10
t,switching times [ns]
tr
tf
Vcc = 300V
Vge = -5/15V
Rg= 10ohm
Tj= 150
50
175
200
25
50
75
100
125
Ic, Collectoer current [A]

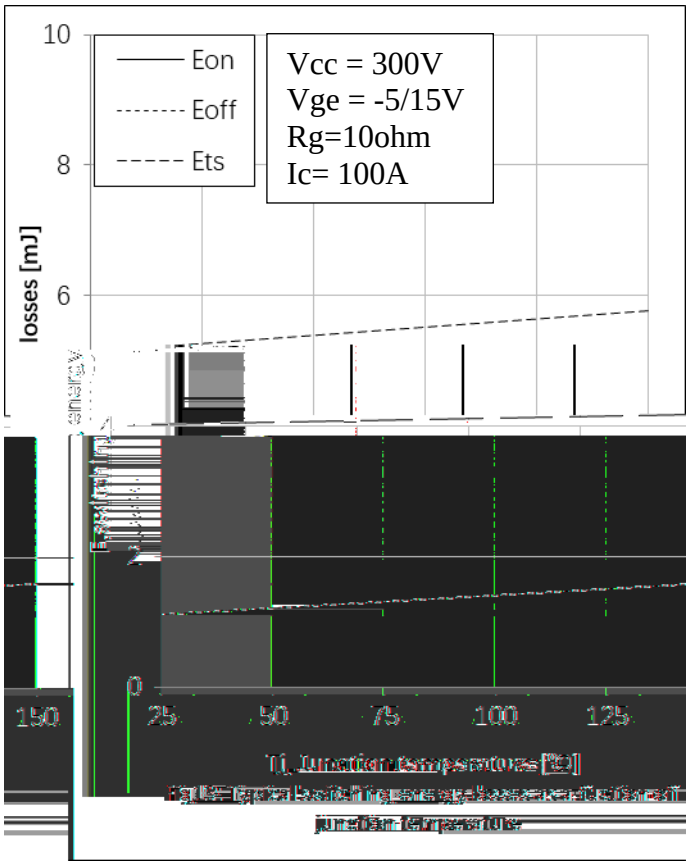

1000
100
10
1
t,switching times [ns]
Vcc = 300V
Vge = -5/15V
Ic= 100A
Tj= 150
tdon
tr
tdoff
tf

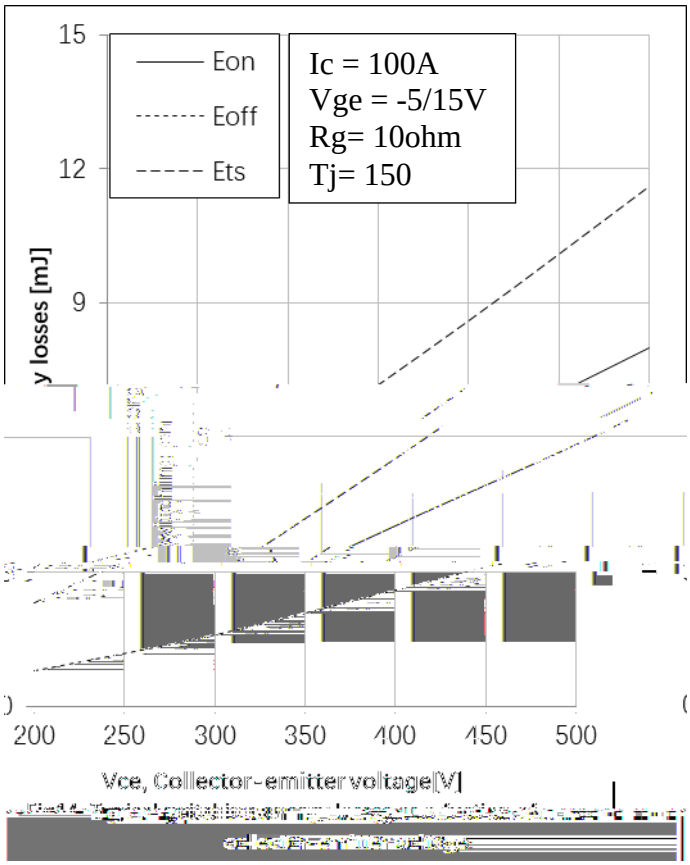

1000
100
10
1
75
100
125
150
25
50
temperature [°C]
Tj, Junction
Vcc = 300V
Vge = -5/15V
Rg= 10ohm
Ic= 100A

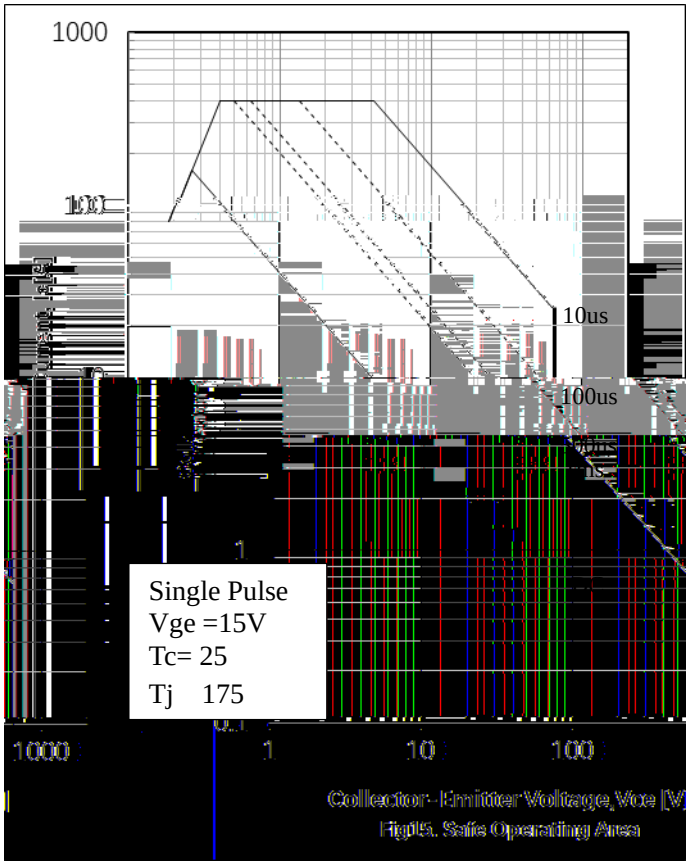

typ
min
max
4.5
3.5
3
2.5
2
1
50
75
100
125
150
25
Tj, Junction temperature [°C]

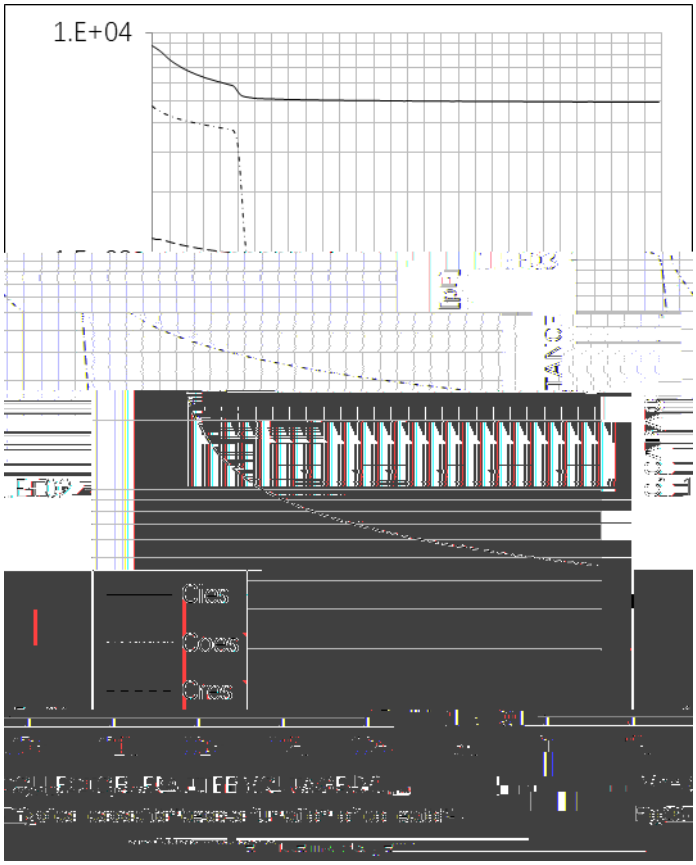

20
15
5
0
Eon
Eoff
Ets
Vcc = 300V
Vge = -5/15V
Rg= 10ohm
Tj= 150
Ic, Collectoer current [A]

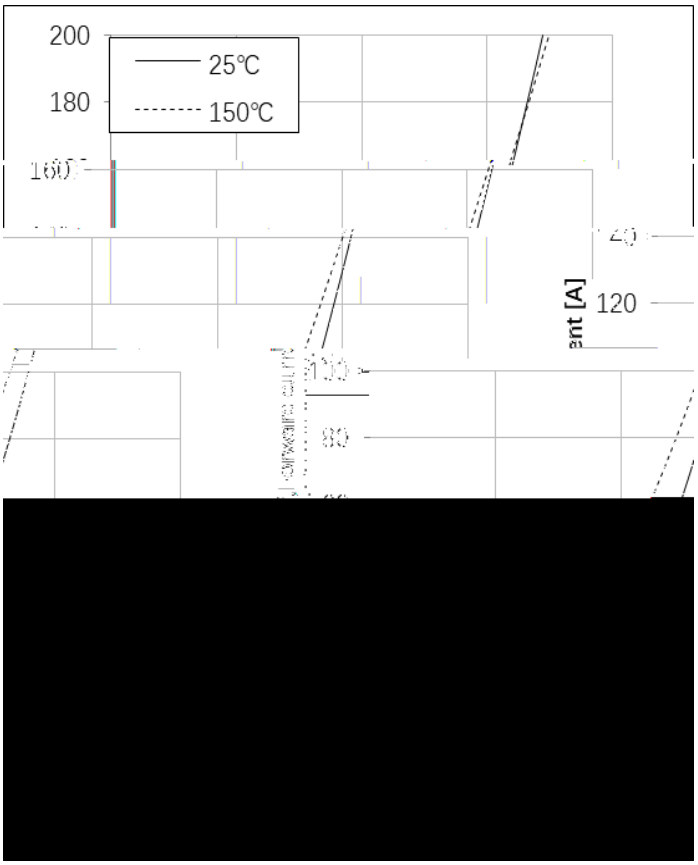

12
0
Eon
Eoff
Vcc = 300V
Vge = -5/15V
Ic= 100A
Tj= 150

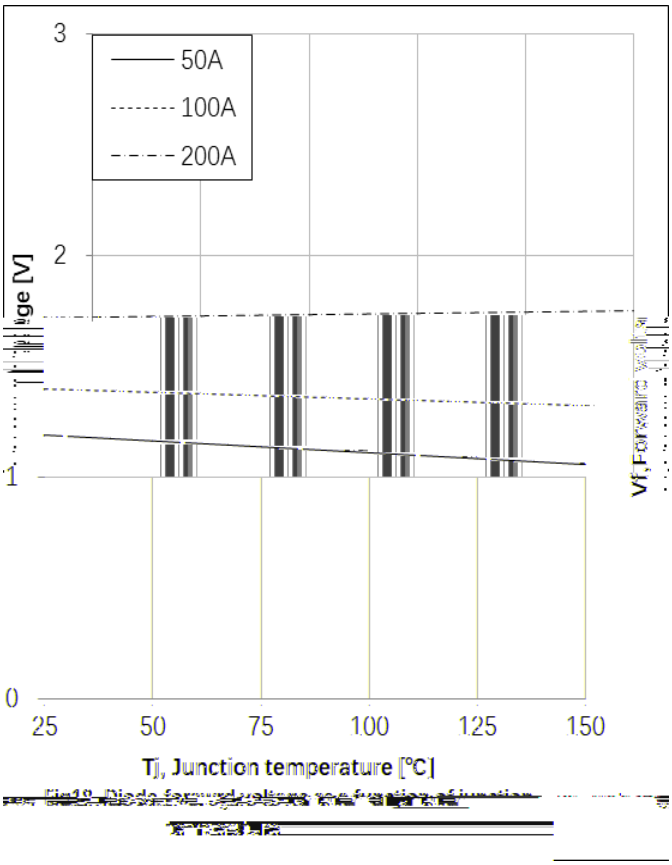

Eon
Eoff
Ets
Vcc = 300V
Vge = -5/15V
Rg=10ohm
Ic= 100A
losses [mJ]
10
8
6
0
25
50
75
100
125
150

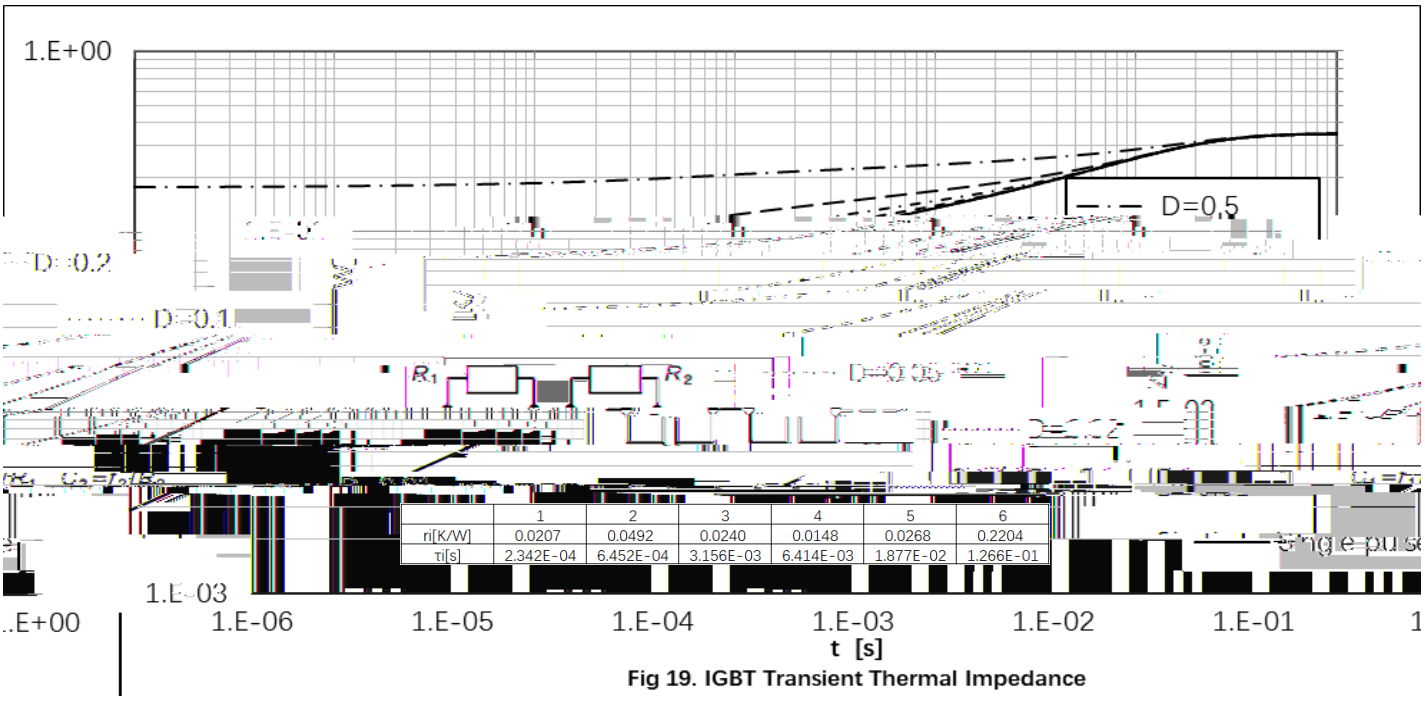

Eon
Eoff
Ets
Ic = 100A
Vge = -5/15V
Rg= 10ohm
Tj= 150
15
12
9
200
250
300
350
400
450
500
Vce, Collector-emitter voltage[V]


1000
100
10us
100us
1
Single Pulse
Vge =15V
Tc= 25
Tj 175
1000
1
10
100
Collector-Emitter Voltage, Vce [V]
Fig15. Safe Operating Area


1.E+04
Ciss
Coss
Crss

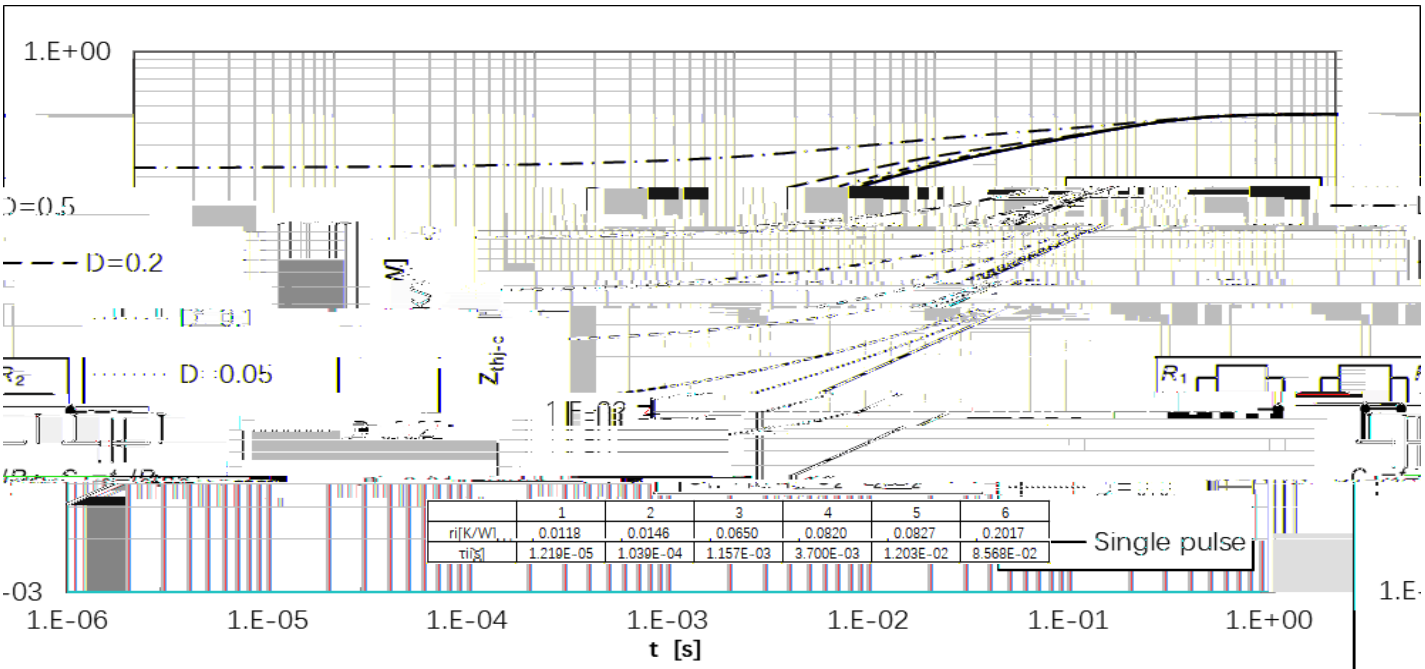






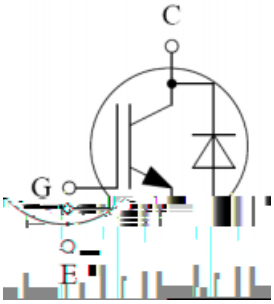
	1	2	3	4	5	6
ri[K/W]	0.0207	0.0492	0.0240	0.0148	0.0268	0.2204
τi[s]	2.342E-04	6.452E-04	3.156E-03	6.414E-03	1.877E-02	1.266E-01

Fig 19. IGBT Transient Thermal Impedance



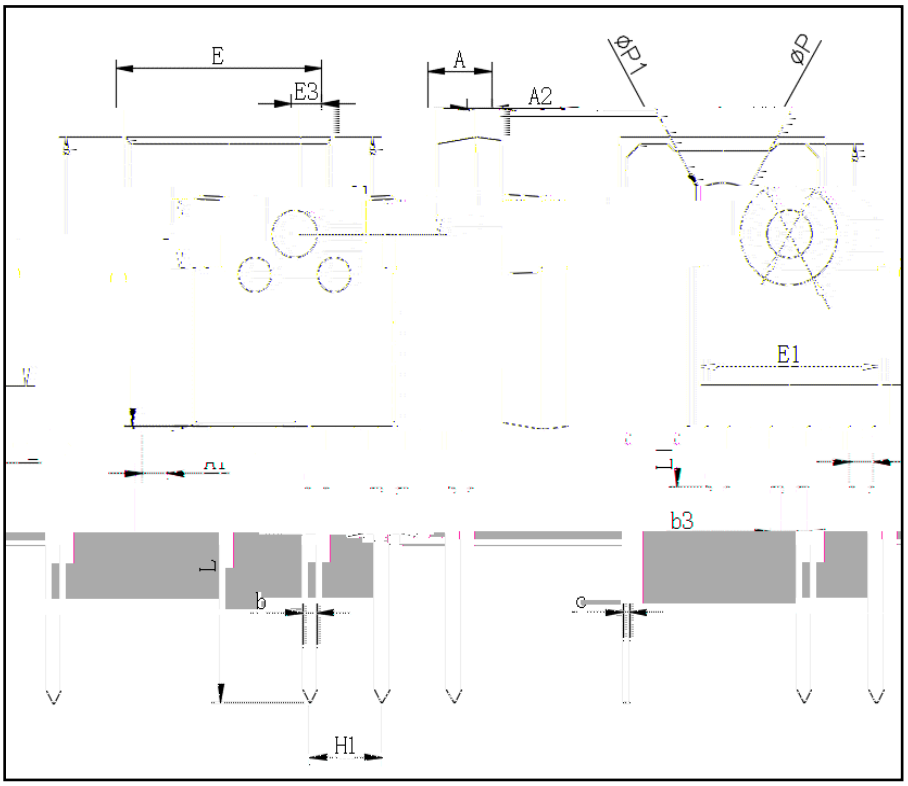
	1	2	3	4	5	6
ri[K/W]	0.0118	0.0146	0.0650	0.0820	0.0827	0.2017
τi[s]	1.219E-05	1.039E-04	1.157E-03	3.700E-03	1.203E-02	8.568E-02

Fig 20. Diode Transient Thermal Impedance



Package Outline Information

CASE: TO 247



TO-247AB		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.0	1.4
b2	1.91	2.21
C	0.5	0.7
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.0	13.6
E2	4.80	5.20
E3	2.30	2.70
L	19.62	20.22
L1	-	4.30
ΦP	3.40	3.80
ΦP1	-	7.30
S	6.15TYP	
H1	5.44TYP	
b3	2.80	3.20