Maximum Ratings

Electrical Characteristics of the IGBT T_j= 25 unless otherwise specified

Parameter	Symbol	Conditions	Min.	Typ.

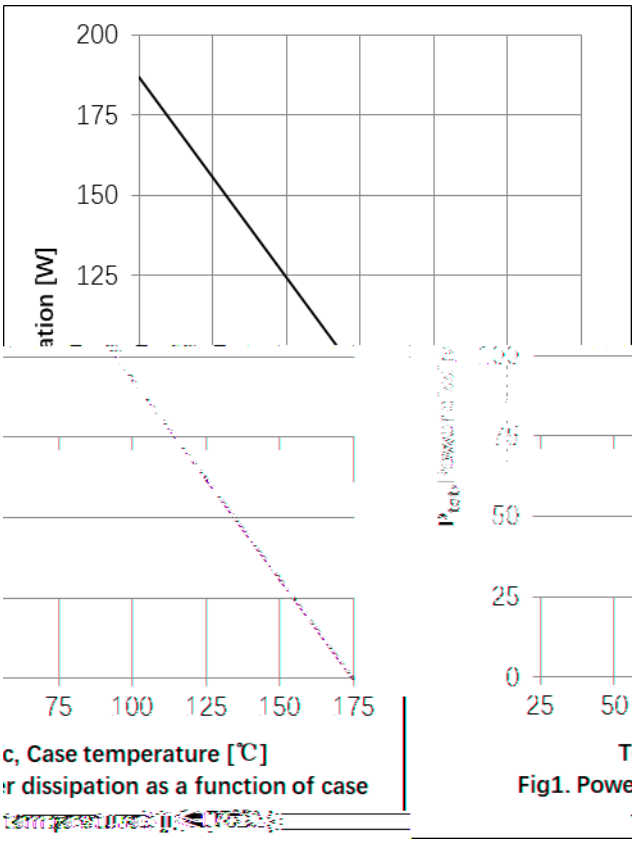
Electrical Characteristics of the Diode T_j= 25 unless otherwise specified

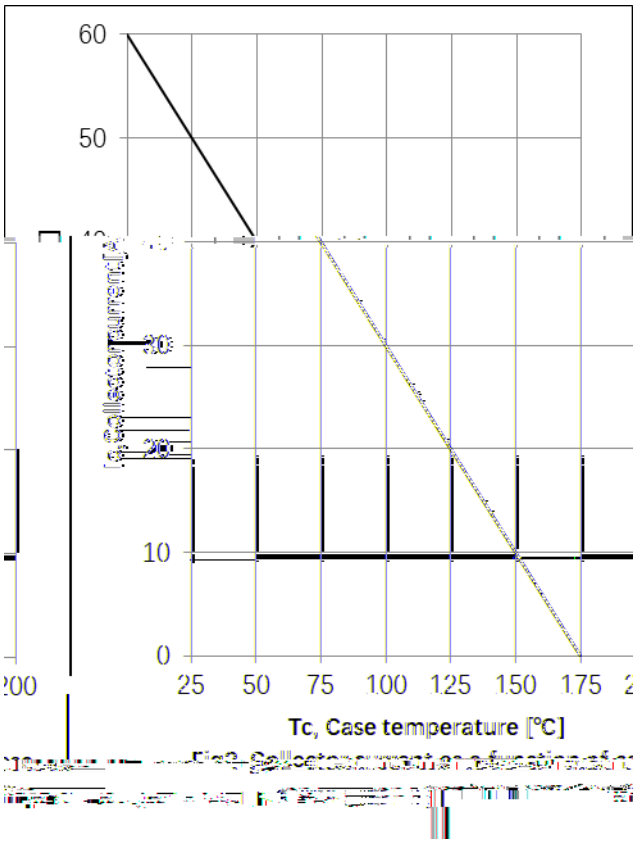
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Diode Forward Voltage	V_F	I_F= 30A T_j= 25°C, T_j= 125°C T_j= 150°C		1.90 1.85 1.75	2.60	V

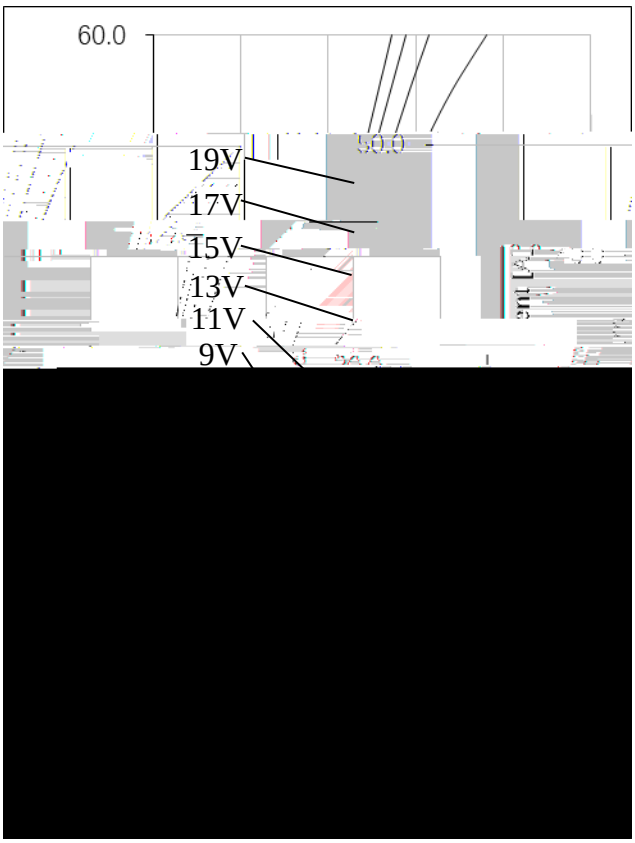
Switching Characteristic, Inductive Load

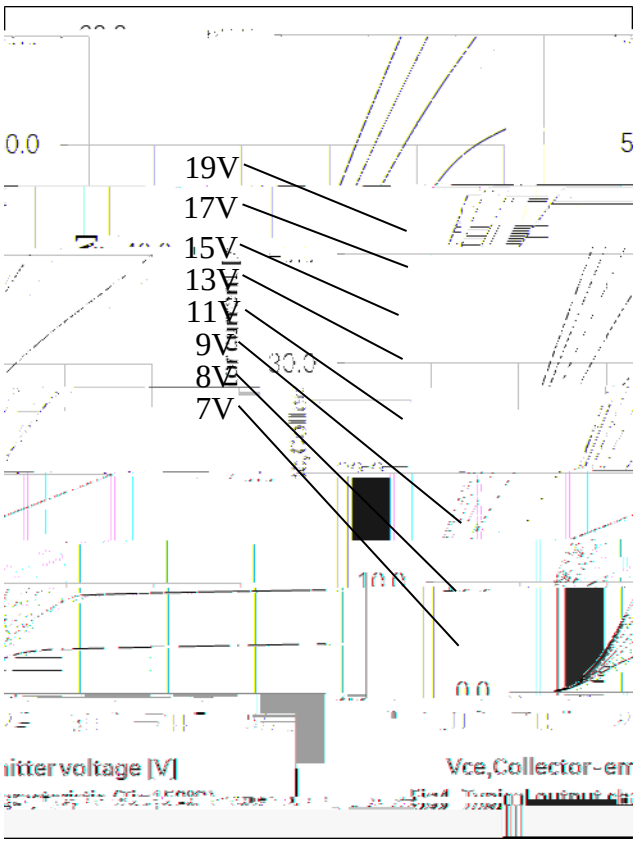
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Dynamic , at T_j= 25						
Turn-on Delay Time	$t_{d(on)}$	V_{CC}=400V, I_C=30A, V_{GE}= 0v~15V, Rg=10 ,Ls=60nH	-	8	-	ns
Rise Time	t_r		-	22	-	ns
Turn-on Energy	E_{on}		-	1.05	-	mJ
Turn-off Delay Time	$t_{d(off)}$		-	80	-	ns
Fall Time	t_f		-	20.52		

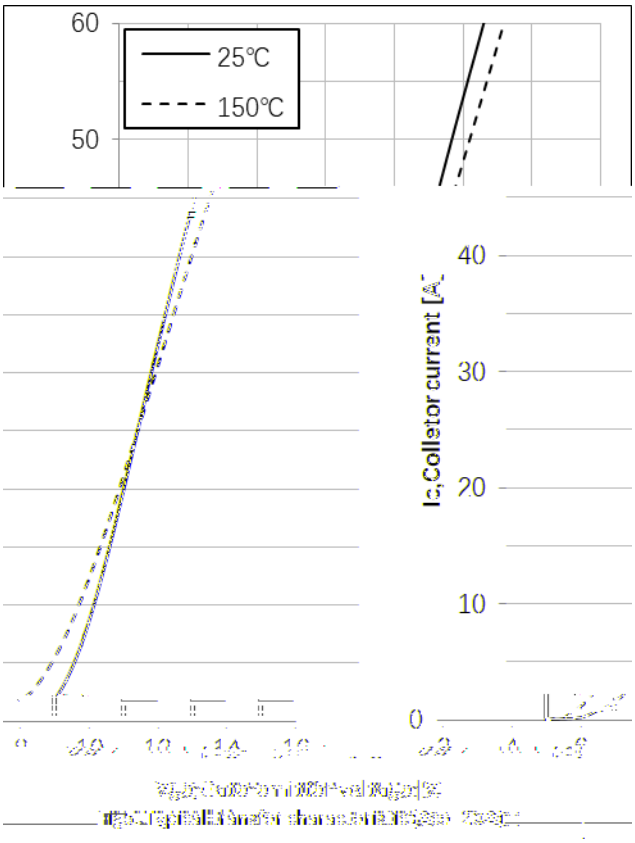
Rg=

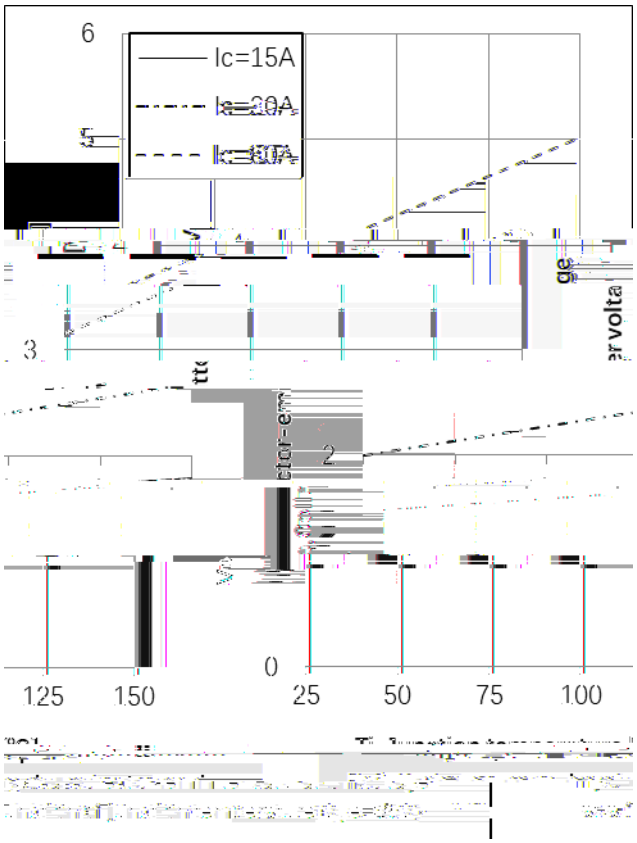

200
175
150
125
75
100
125
150
175
25
50
0
c, Case temperature [℃]
r dissipation as a function of case
Fig1. Powe

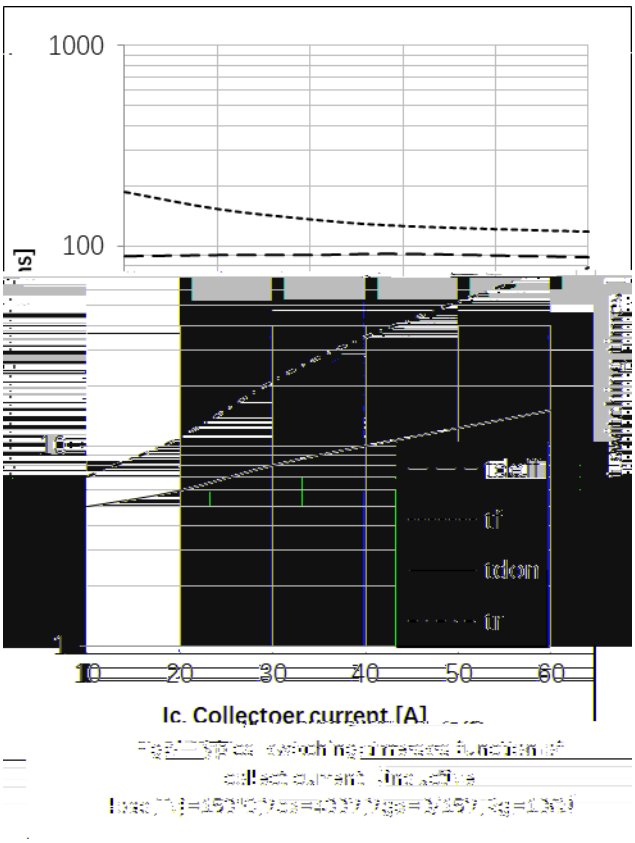

60
50
10
0
25
50
75
100
125
150
175
Tc, Case temperature [℃]

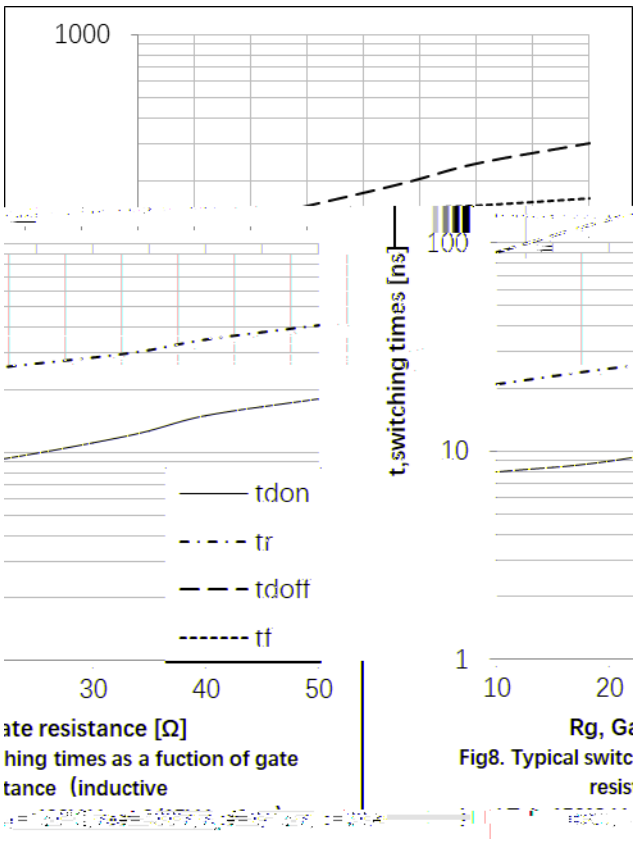

60.0
19V
17V
15V
13V
11V
9V

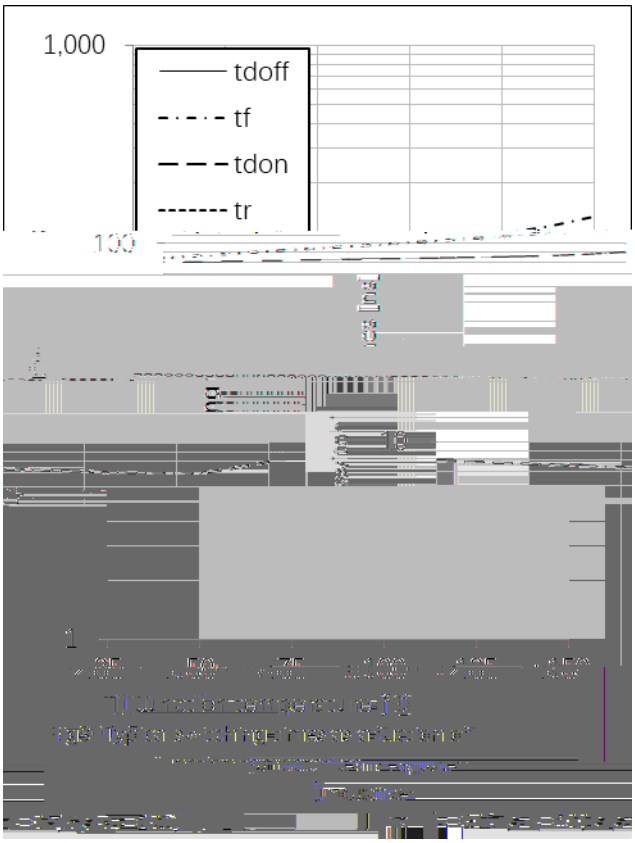

19V
17V
15V
13V
11V
9V
8V
7V
itter voltage [V]
Vce,Collector-em

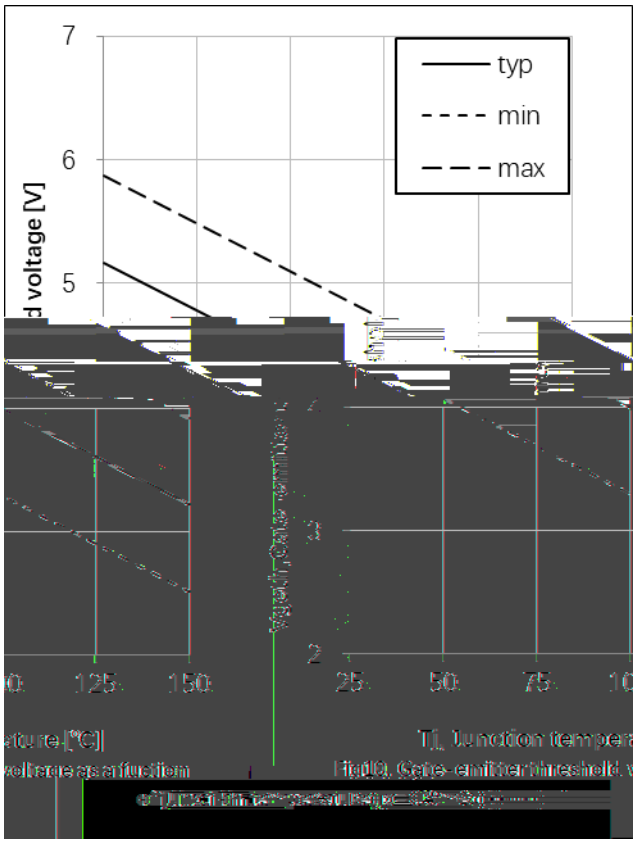

60
50
25℃
150℃
40
30
20
10
0
Ic,Collector current [A]


6
Ic=15A
3
2
0
125
150
25
50
75
100


1000
100
tdoff
tf
tdon
tr
10
20
30
40
50
60
Ic, Collectoer current [A]


1000
100
10
1
tdon
tr
tdoff
tf
30
40
50
10
20
t,switching times [ns]
ate resistance [Ω]
hing times as a fuction of gate
tance (inductive
Rg, Ga
Fig8. Typical switc
resis





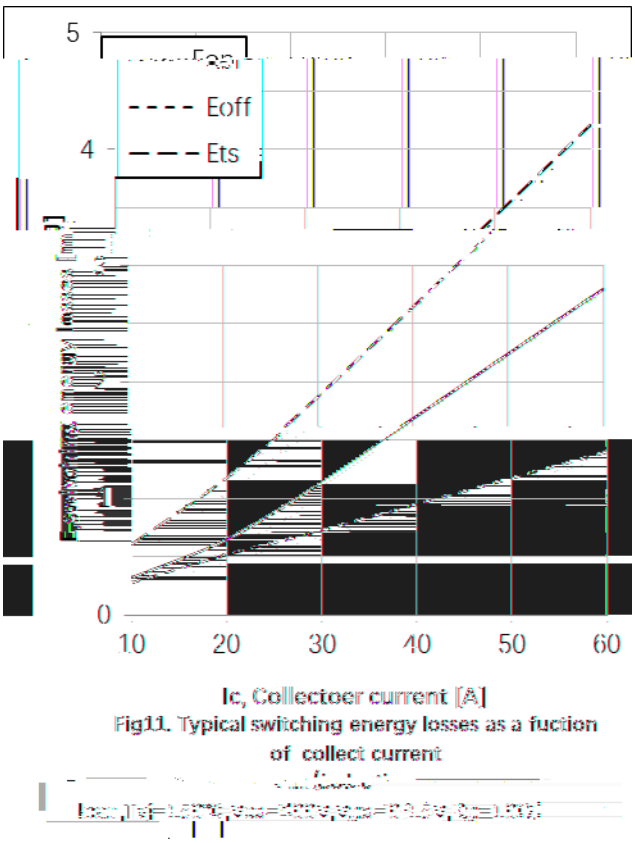


Fig11. Typical switching energy losses as a fuction of collect current

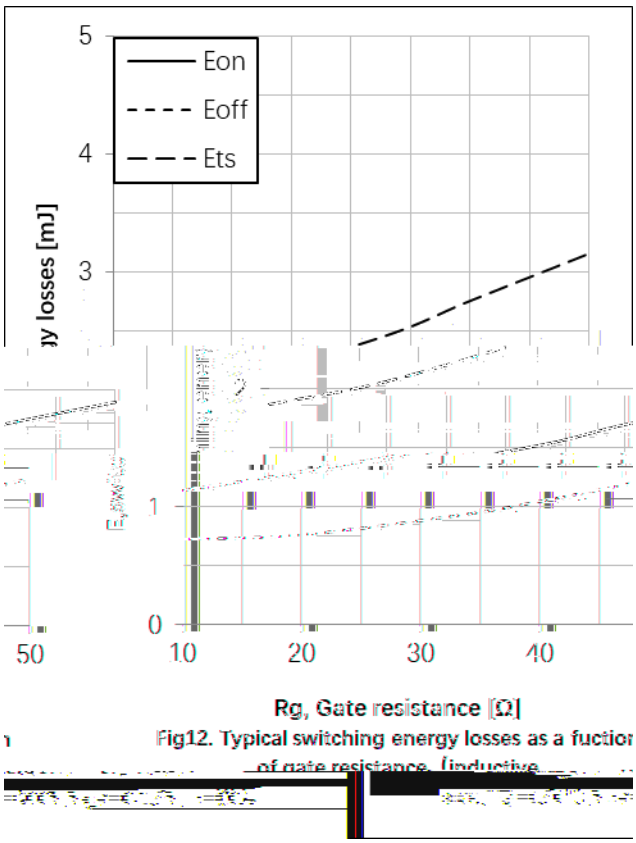
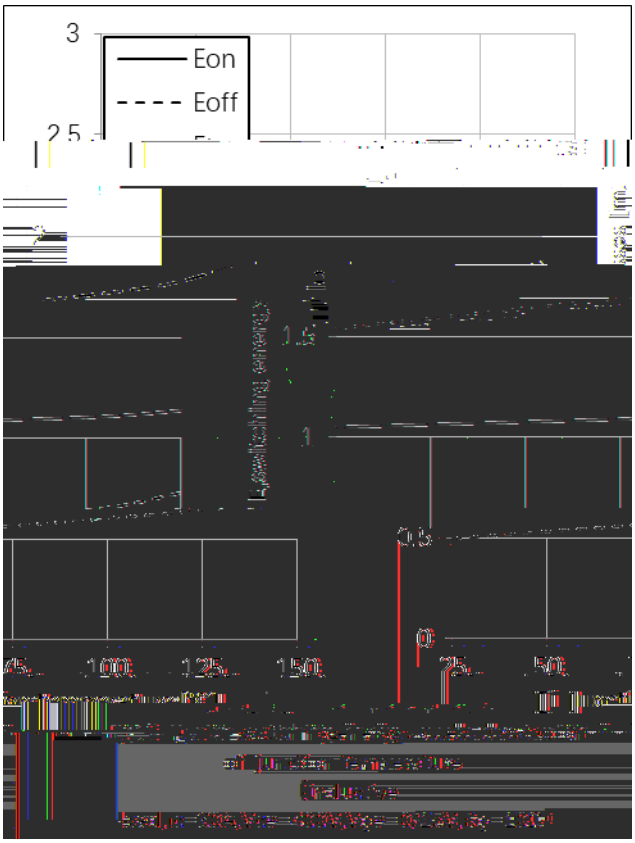
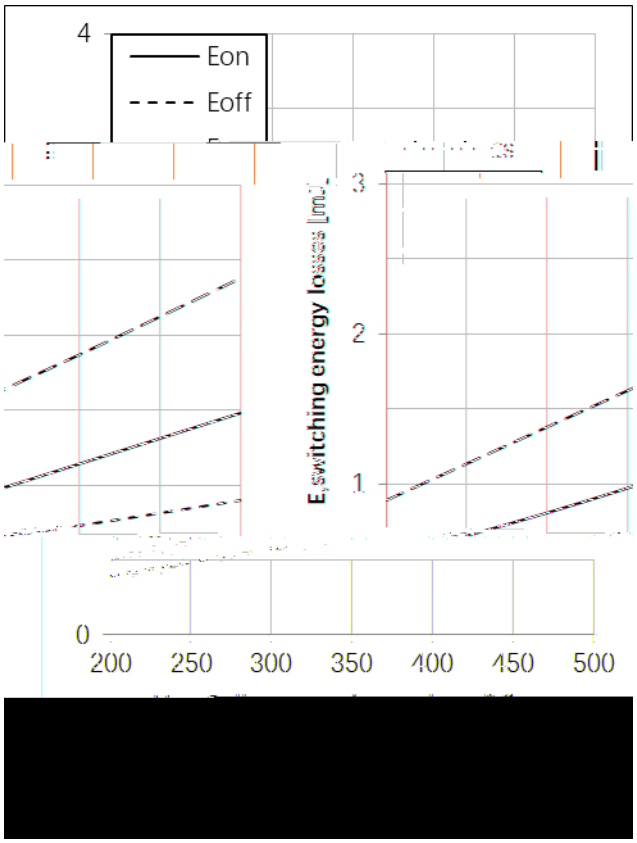
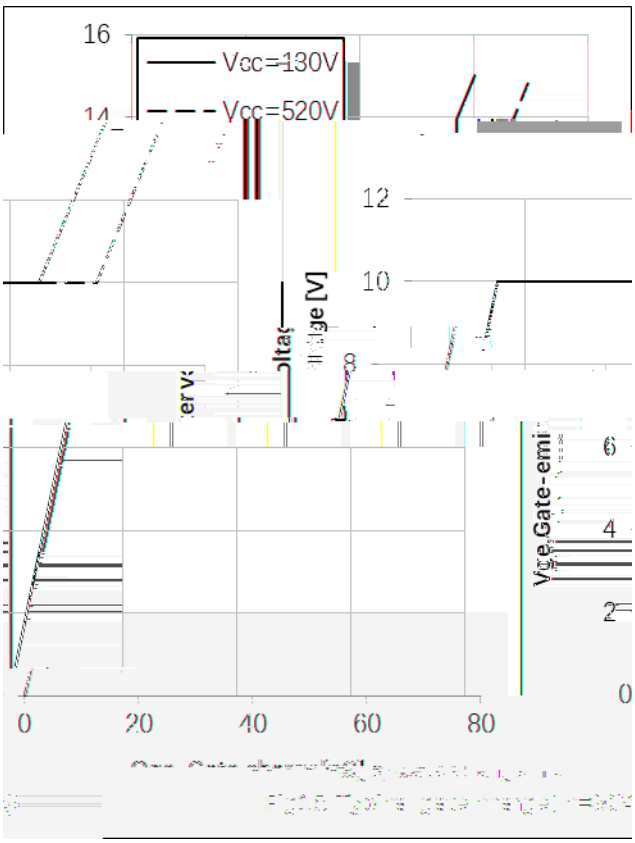
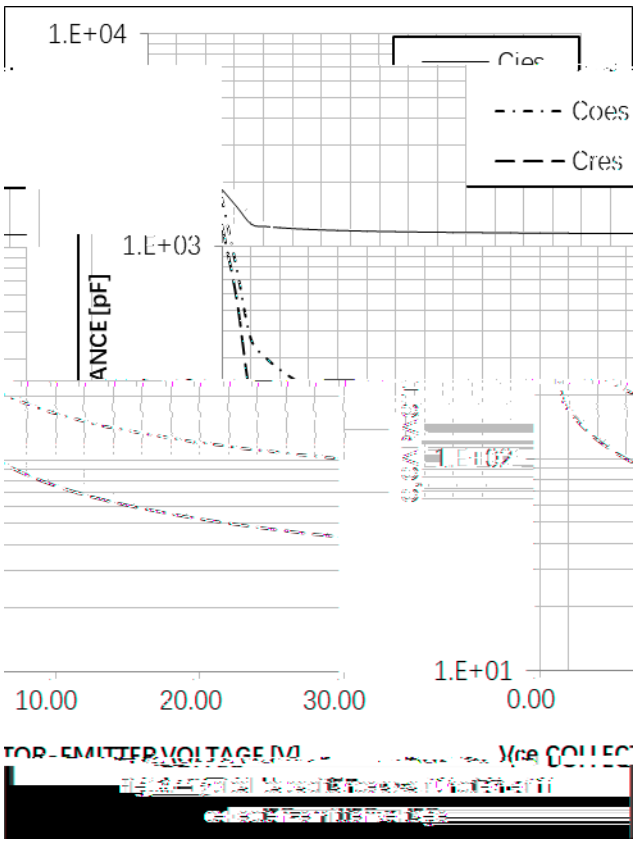


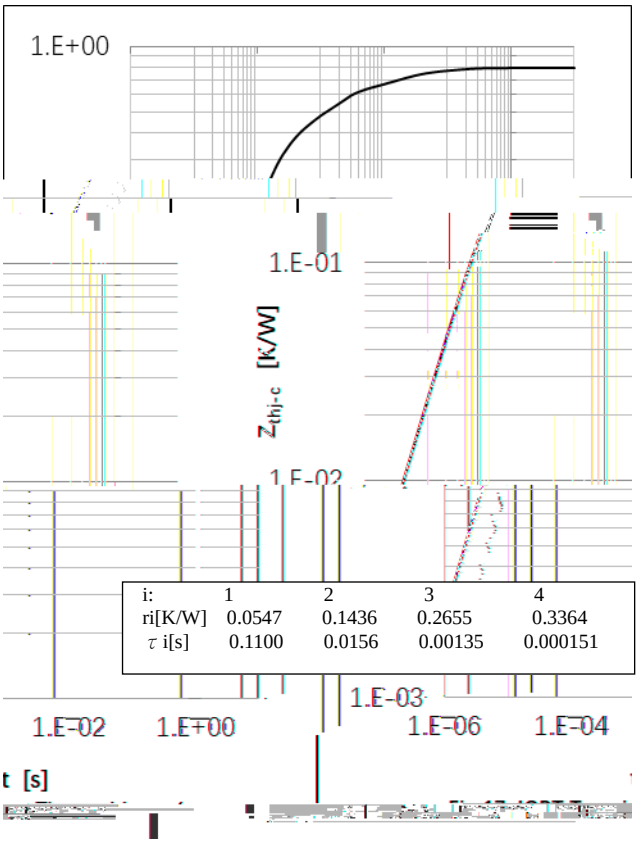
Fig12. Typical switching energy losses as a fuction of gate resistance (inductive


3
Eon
Eoff
2.5
1.5
1
0
100
125
150

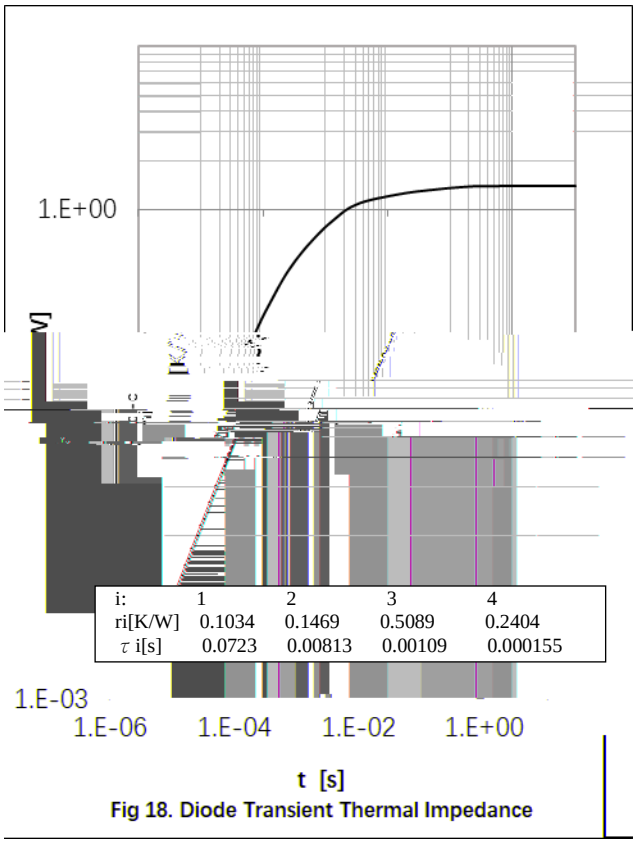

4
Eon
Eoff
E,switching energy losses [mJ]
3
2
1
0
200
250
300
350
400
450
500


16
Vcc=130V
Vcc=520V
12
10
6
4
2
0
0
20
40
60
80


1.E+04
Coes
Cres
1.E+03
1.E+01
10.00
20.00
30.00
0.00

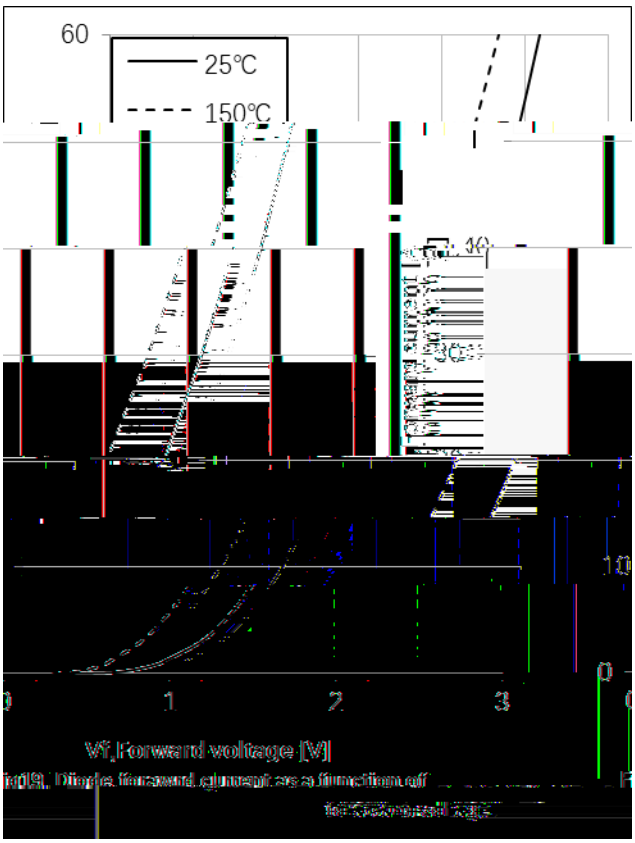


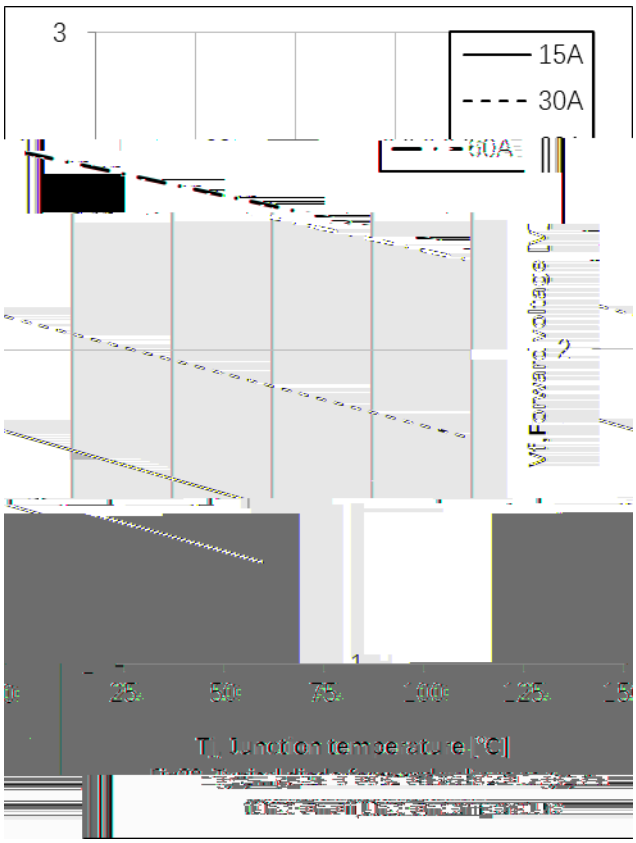
i:	1	2	3	4
ri[K/W]	0.0547	0.1436	0.2655	0.3364
τ i[s]	0.1100	0.0156	0.00135	0.000151

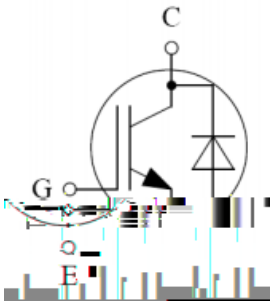


i:	1	2	3	4
ri[K/W]	0.1034	0.1469	0.5089	0.2404
τ i[s]	0.0723	0.00813	0.00109	0.000155

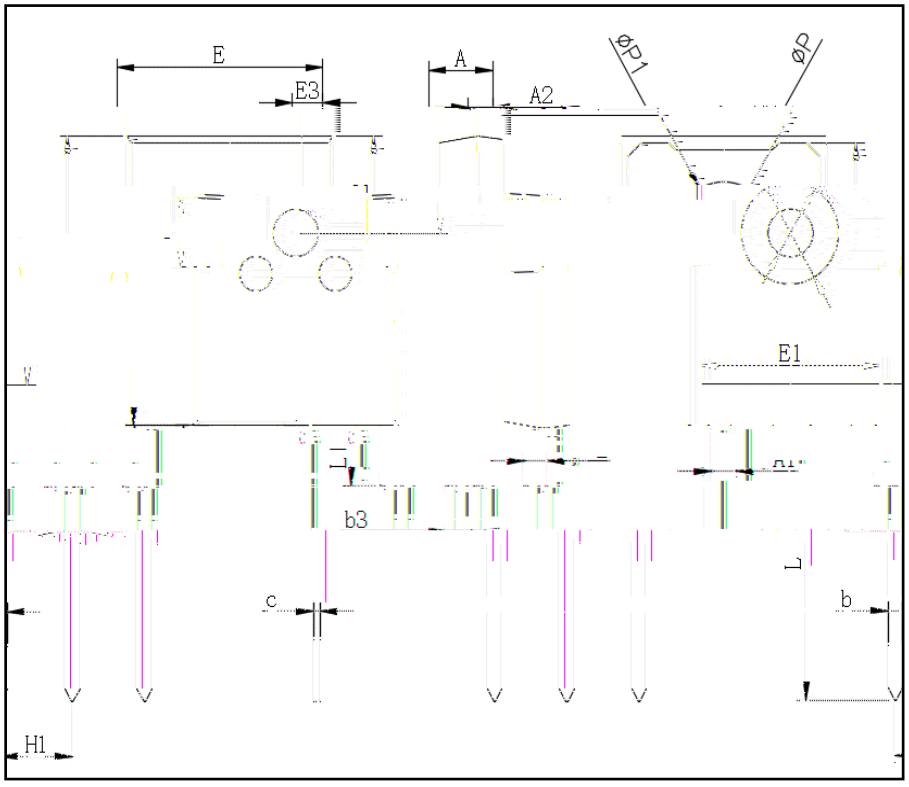
Fig 18. Diode Transient Thermal Impedance







Package Outline Information



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