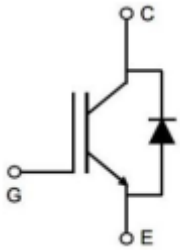
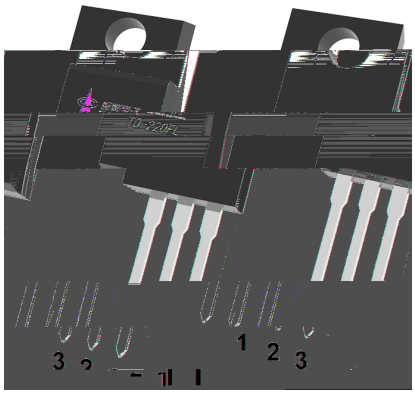
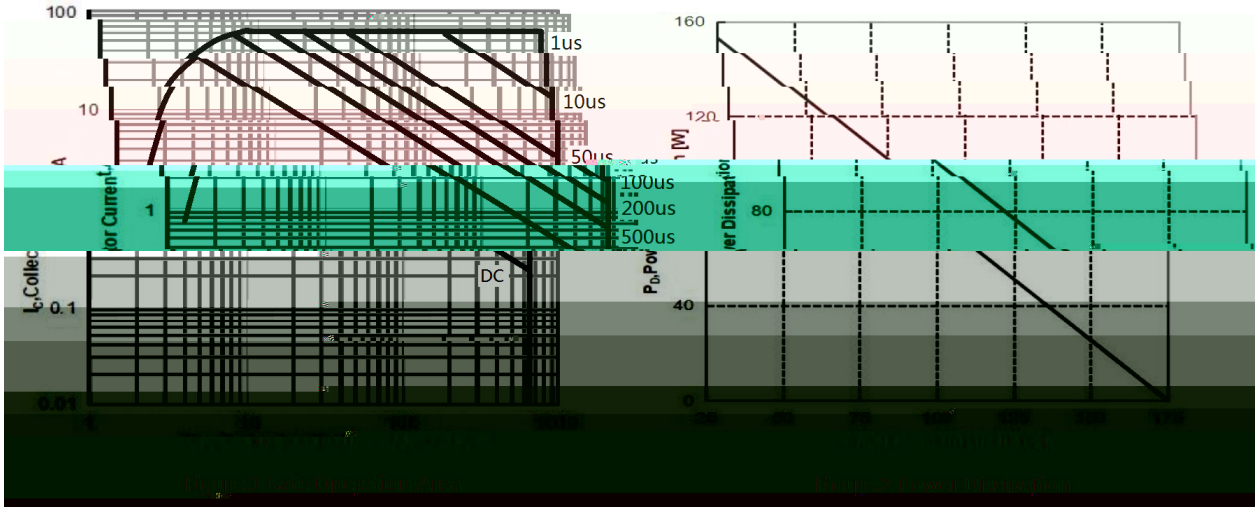
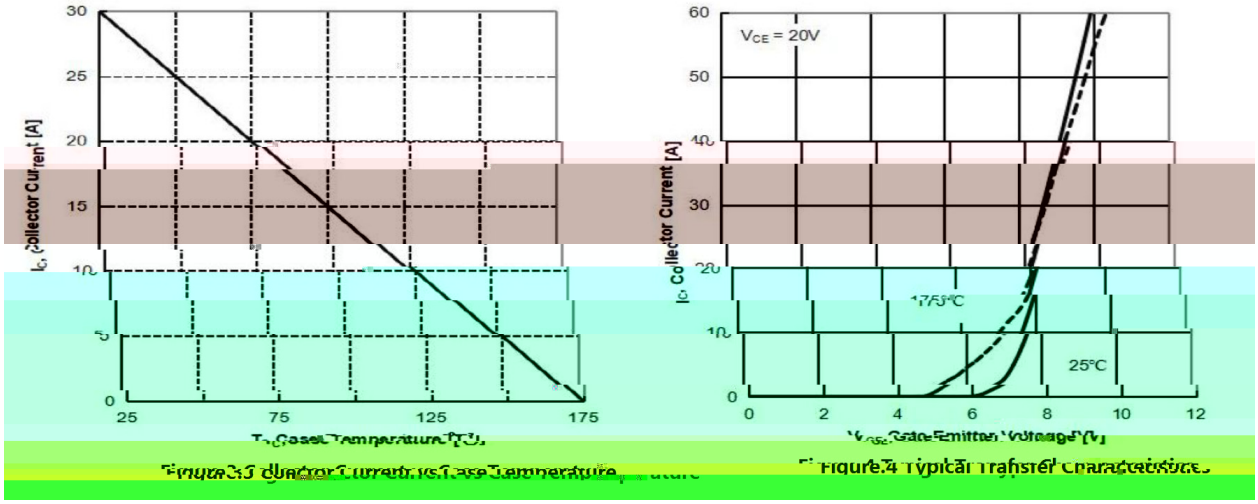
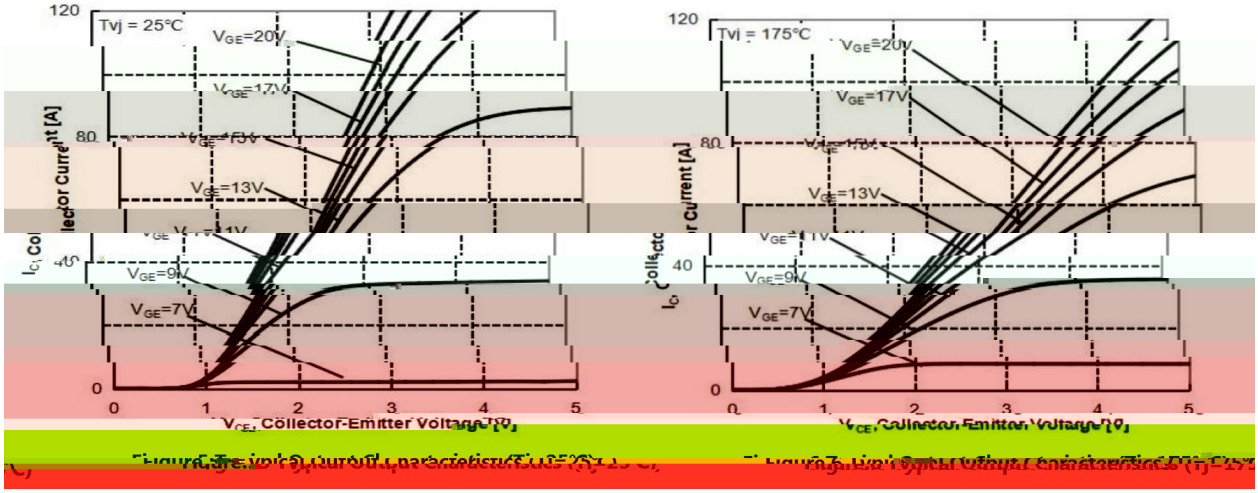

C
G
E


1
2
3


100
10
1
0.1
0.01
1us
10us
50us
100us
200us
500us
DC
160
120
80
40
0


30
25
20
15
10
5
0
25
75
125
175
60
50
40
30
20
10
0
V_{CE} = 20V
175℃
25℃
0
2
4
6
8
10
12


120
80
40
0
Tvj = 25°C
Tvj = 175°C
V_{GE}=20V
V_{GE}=17V
V_{GE}=13V
V_{GE}=9V
V_{GE}=7V
0
1
2
3
4
5

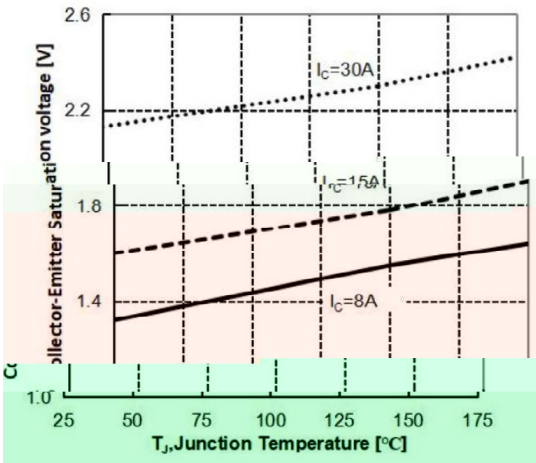


Figure 7. Typical Collector-Emitter Saturation Voltage vs. Junction Temperature

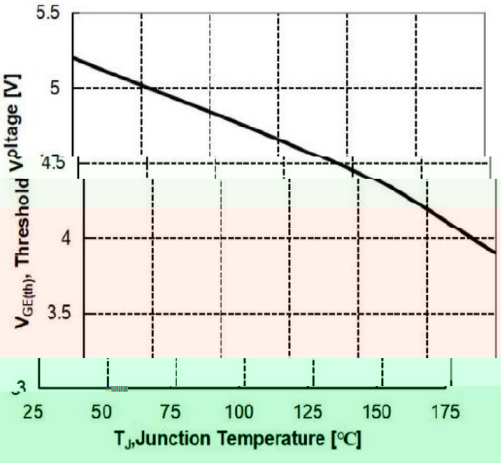


Figure 8. Typical Gate-Emitter Threshold Voltage vs. Junction Temperature

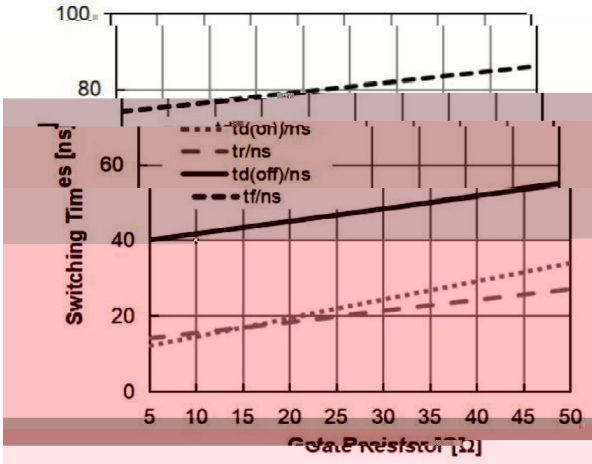


Figure 9. Typical Switching Times Vs Gate Resistor
(Tj=25℃, VCE=400V, VGE=15/0V, IC=15A)

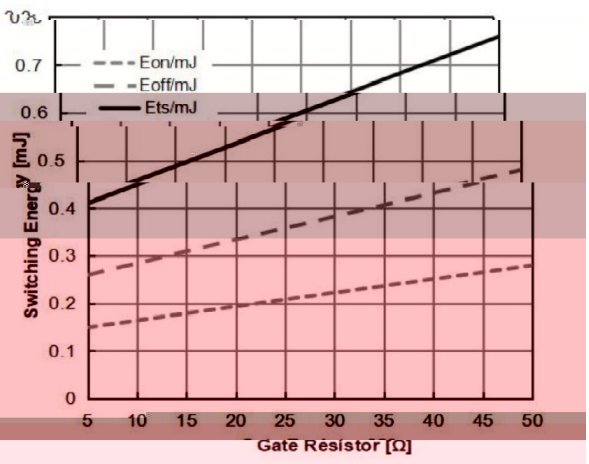


Figure 10 Typical Switching Energy vs Gate Resistor
(Tj=25℃, VCE=400V, VGE=15/0V, IC=15A)

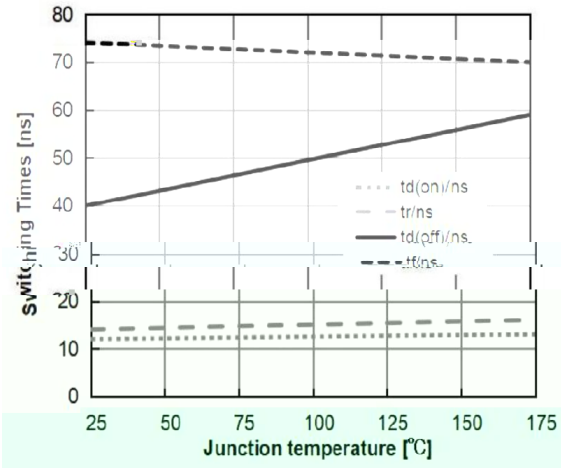


Figure 11 Typical Switching Times vs Junction Temperature
(VCE=400V, VGE=15/0V, IC=15A)

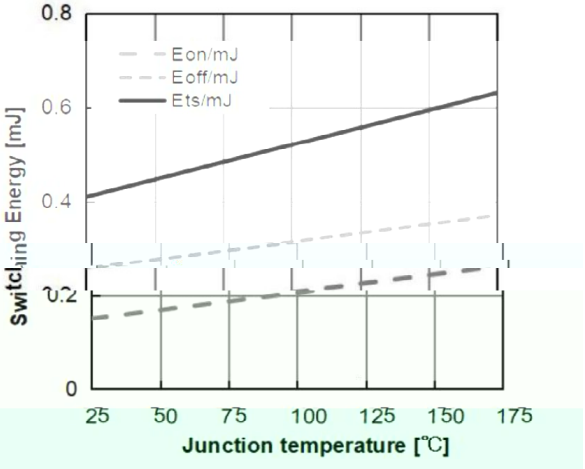
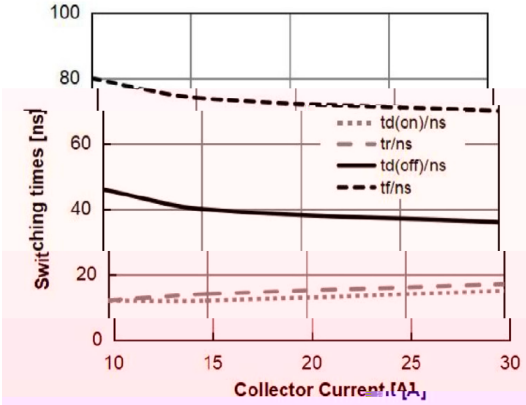
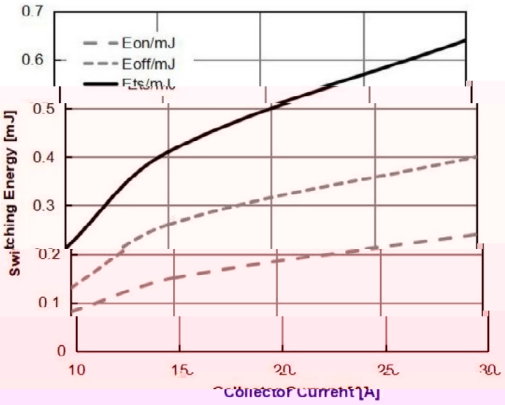
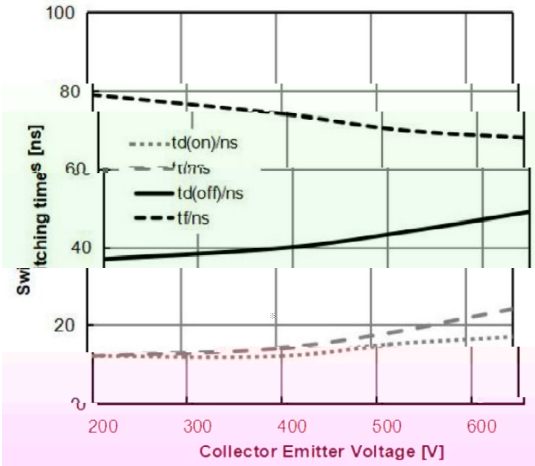
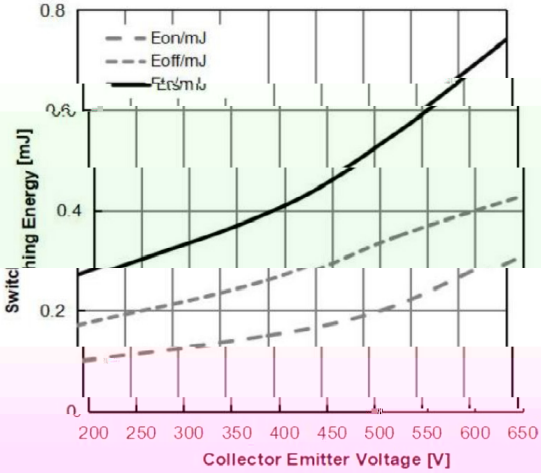


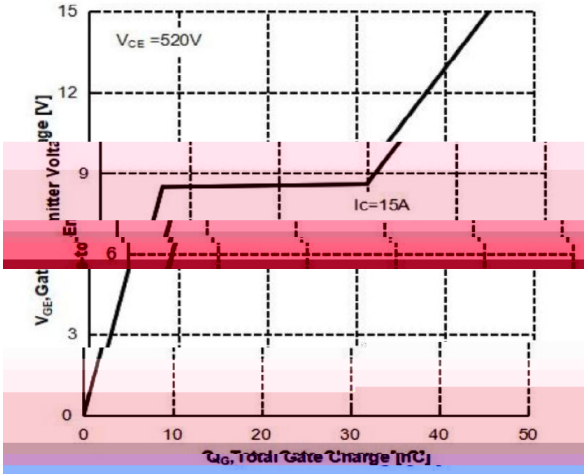
Figure 12 Typical Switching Energy vs Junction Temperature
(VCE=400V, VGE=15/0V, IC=15A)

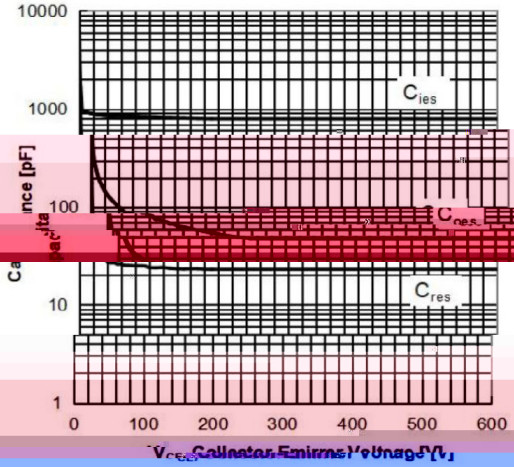

Switching times [ns]
Collector Current [A]
td(on)/ns
tr/ns
td(off)/ns
tf/ns


Switching Energy [mJ]
Eon/mJ
Eoff/mJ
Ets/mJ


Switching times [ns]
Collector Emitter Voltage [V]
td(on)/ns
tf/ns
td(off)/ns


Switching Energy [mJ]
Collector Emitter Voltage [V]
Eon/mJ
Eoff/mJ
Ets/mJ


VCE =520V
Ic=15A
VGE, Gate Emitter Voltage [V]
QG, Total Gate Charge [nC]


Cies
Coes
Cres
Capacitance [pF]
VCE, Collector Emitter Voltage [V]

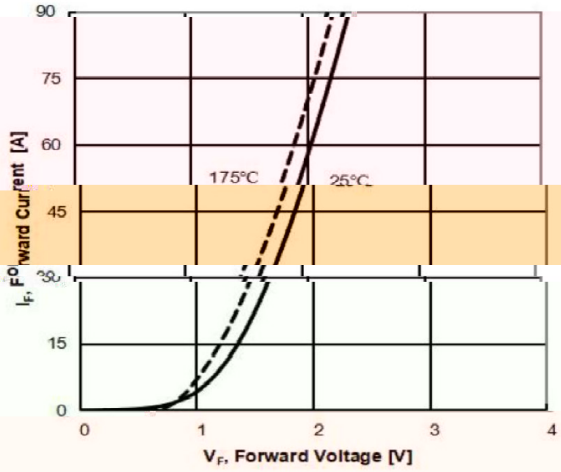
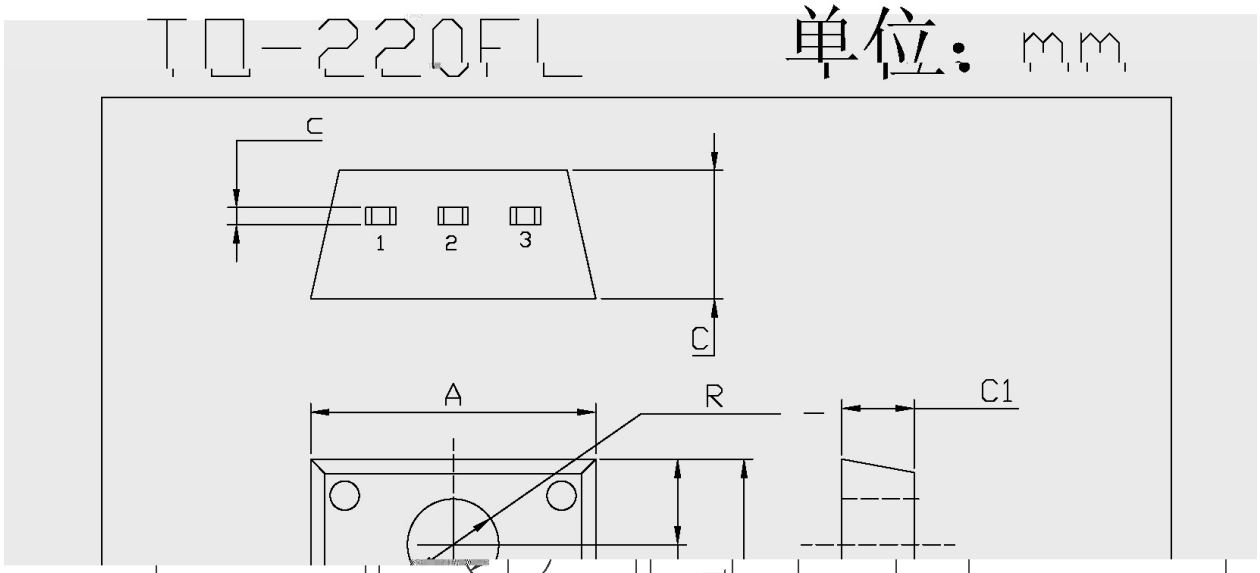
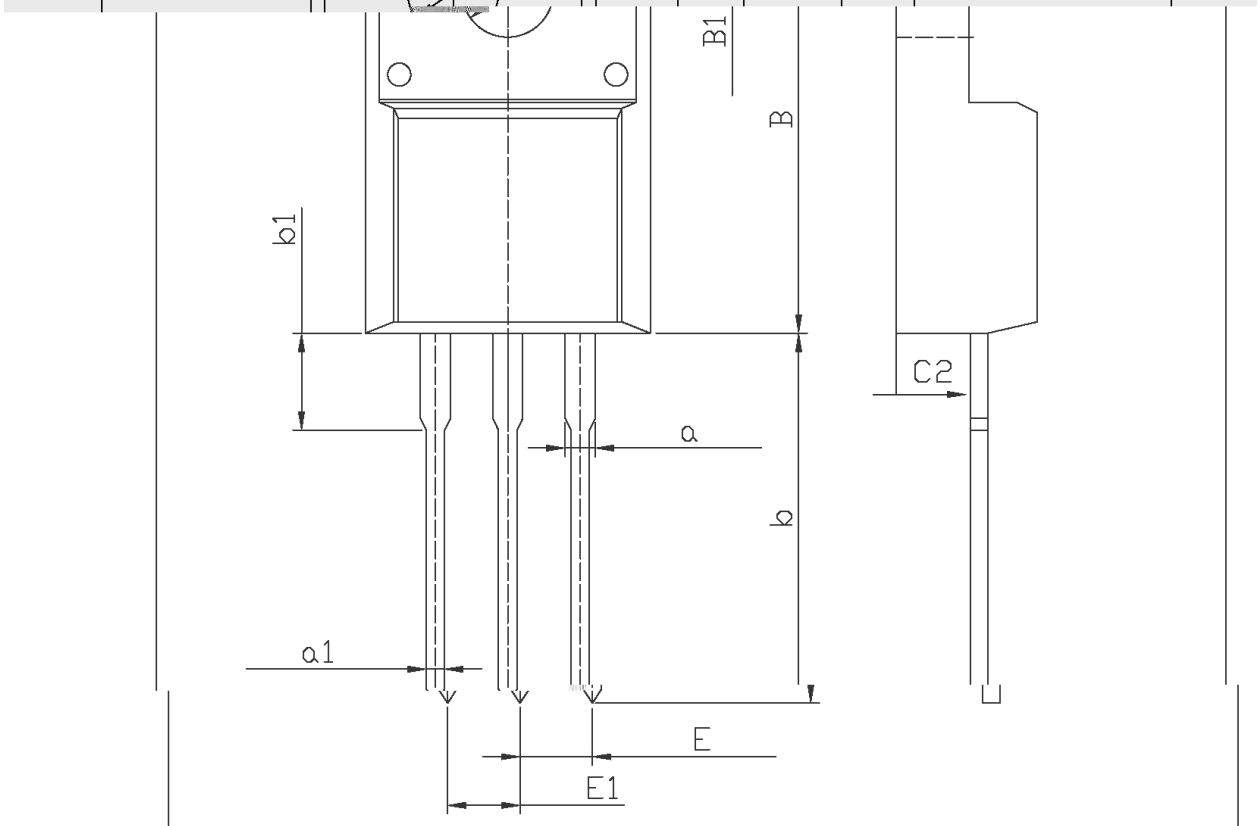


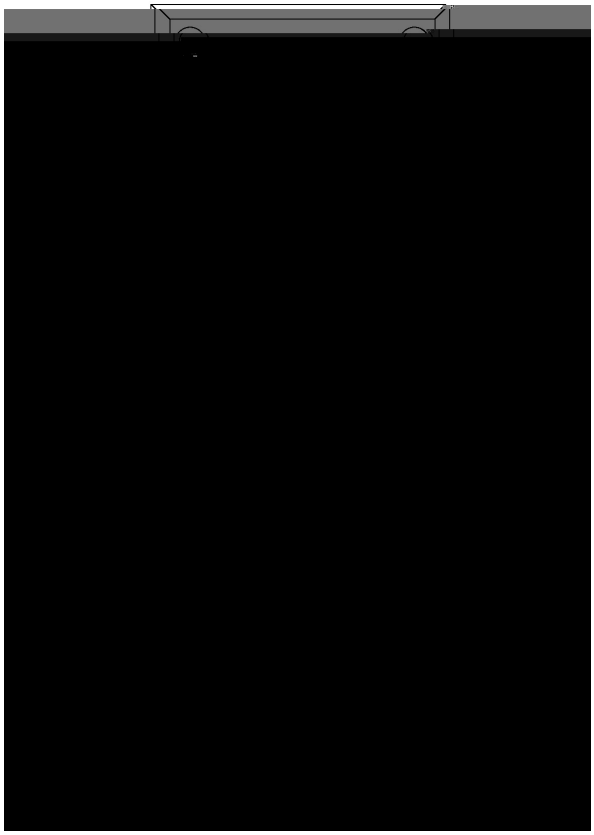
Figure.19 Typical Diode Forward Current vs Forward Voltage

TO-220FL 单位：mm





Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
c	0.4	0.6	a	1.08	1.48
A	4.56	4.96	a1	0.70	0.90
B	15.67	16.07	E	2.34	2.74
B1	3.30	3.50	E1	2.34	2.74
R	3.08	3.28	C1	2.34	2.74



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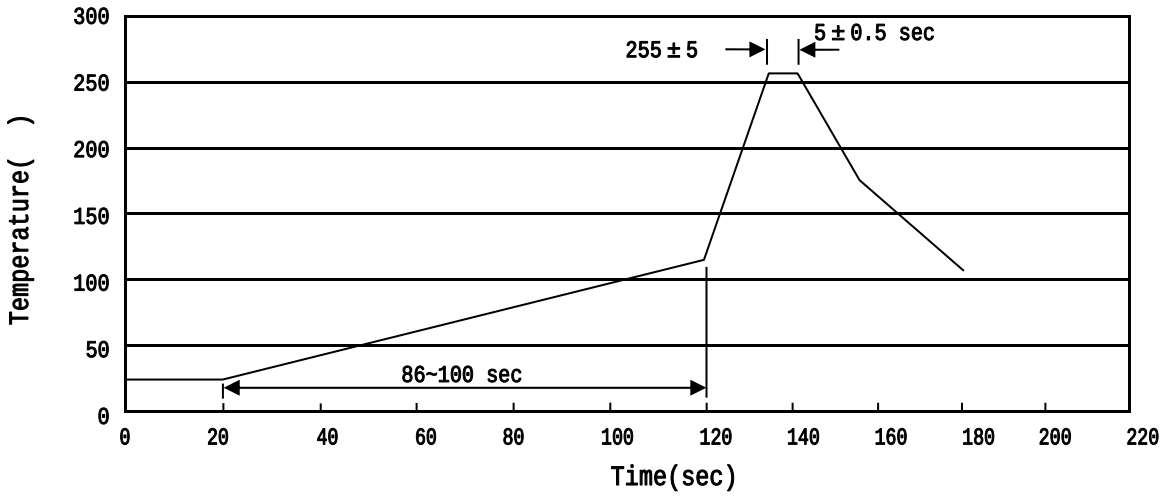
300
250
200
150
100
50
0
Temperature( )
255±5
5±0.5 sec
86~100 sec
0
20
40
60
80
100
120
140
160
180
200
220
Time(sec)

± ± ± ±

± ±