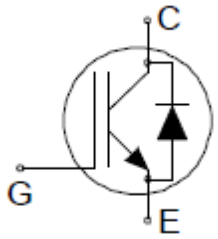
上海贝岭
SHANGHAI BELLING

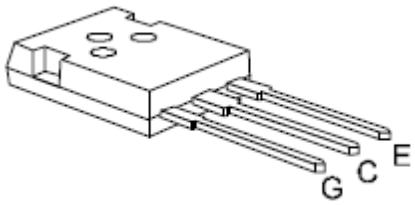
BLG40T120FDH

IGBT

1. Description

BLG40T120FDH is obtained by advanced Trench Field Stop (T-FS) technology which reduces the conduction loss, improve switching performance, and enhance the avalanche energy. The IGBT is suitable device for UPS, Welding, and high-speed switching.





TO-247-3

KEY CHARACTERISTICS

Parameter	Value	Unit
V_{CES}	1200	V
I_C	40	A
$V_{CE(sat).typ}$	1.9	V
P_D (T_C=25℃)	367	W

FEATURES

- Fast Switching
- Low $V_{CE(sat)}$
- Positive temperature coefficient
- Very soft, fast recovery anti-parallel diode
- RoHS product

APPLICATIONS

- UPS
- Welding Converters
- Converters with high switching frequency

ORDERING INFORMATION

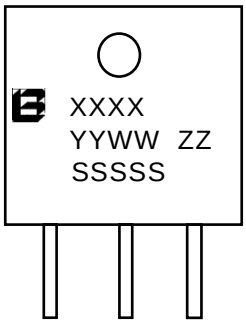
Ordering Codes	Package	Product Code	Packing
BLG40T120FDH-F	TO-247	G40T120FDH	Tube

BLG40T120FDH-F

(2) Package type

(1) Chip name

(1) BLG40T120FDH:1200V 40A
(2) F:TO-247



XXXX：Product Code

YYWW：Year & Week

ZZ：Assembly Code

SSSSS：Lot Code

2. ABSOLUTE RATINGS

at T_C = 25°C, unless otherwise specified

Symbol	Parameter	Rating	Units
V_{CES}	Collector-Emitter Voltage	1200	V
I_C	Collector Current @T_C=25°C	80	A
	Collector Current @T_C=100°C	40	A
I_{CM}	Pulsed Collector Current (Note1) @T_C=25°C	160	A
I_F	Diode Continuous Forward Current @T_C=25°C	80	A
	Diode Continuous Forward Current @T_C=100°C	40	A
I_{FM}	Diode Maximum Forward Current @T_C=25°C	160	A
V_{GES}	Gate-Emitter Voltage	±20	V
P_D	Power Dissipation @T_C=25°C	367	W
T_{Jmax}, T_{stg}	Operating Junction and Storage Temperature Range	150, –55 to 150	℃
T_L	Maximum Temperature for Soldering	260	℃

3. Thermal characteristics

Symbol	Parameter	RATINGS	Units
$R_{\theta JC}$	Junction-to-Case (IGBT)	0.34	℃/W
$R_{\theta JC}$	Junction-to-Case (Diode)	0.55	℃/W
$R_{\theta JA}$	Junction-to-Ambient	40	℃/W

4. Electrical Characteristics

at T_C = 25°C, unless otherwise specified

OFF Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
V_{CES}	Collector-Emitter Breakdown Voltage	V_{GE} = 0V, I_C = 250μA	1200	--	--	V
I_{CES}	Collector-Emitter Leakage Current	V_{CE} = 1200V, V_{GE} = 0V	--	--	250	μA
$I_{GES(F)}$	Gate-Emitter Leakage Current	V_{GE} = +20V	--	--	600	nA
$I_{GES(R)}$	Gate-Emitter Reverse Leakage	V_{GE} = -20V	--	--	-600	nA

ON Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE} = 15V, I_C = 40A	--	1.9	2.4	V
$V_{GE(TH)}$	Gate Threshold Voltage	V_{CE} = V_{GE}, I_C = 1mA	5.0	5.8	6.5	V
Pulse width tp≤300μs, δ≤2%						

Dynamic Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	V_{GE}=0V V_{CE}=25V f =1.0MHz	--	3630	--	pF
C_{oss}	Output Capacitance		--	180	--	
C_{rss}	Reverse Transfer Capacitance		--	90	--	
Qg	Total Gate Charge	I_C=40A, V_{CE}=960V V_{GE}=15V		245		nC

Switching Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_C =40A V_{CE} = 600V V_{GE} = 15V R_G =10Ω T_J=25°C Inductive Load	--	48	--	ns
tr	Rise Time		--	90	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	275	--	
t_f	Fall Time		--	55	--	
E_{on}	Turn-On Switching Loss		--	5.8	--	mJ
E_{off}	Turn-Off Switching Loss		--	1.5	--	
E_{ts}	Total Switching Loss		--	7.30	--	

Diode Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
V_F	Diode Forward Voltage	I_F=20A	--	2	2.5	V
T_{rr}	Reverse Recovery Time	I_F=20A, dI/dt=200A/us, T_J=25°C	--	73	--	ns
Q_{rr}	Reverse Recovery Charge		--	654	--	nC
I_{rrm}	Reverse Recovery Current		--	14.9	--	A

Note1: Pulse width limited by maximum junction temperature

5. Characteristics Curves

Figure 1. Forward Bias Safe Operating Area

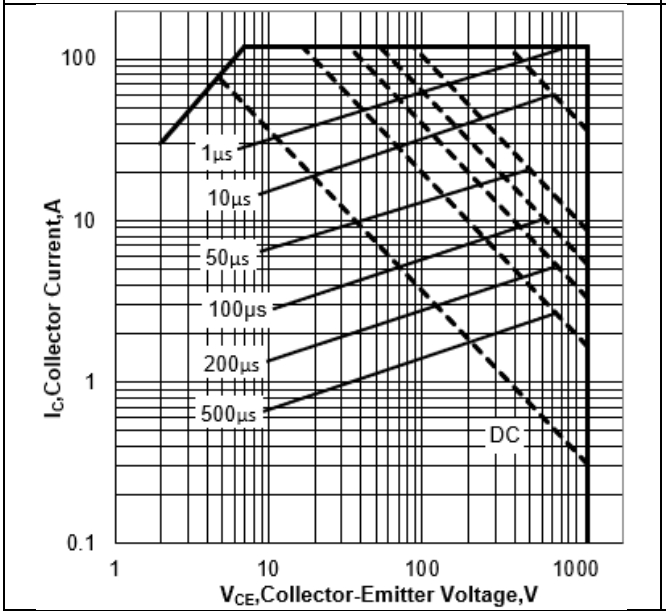


Figure 2. Power Dissipation vs Case Temperature

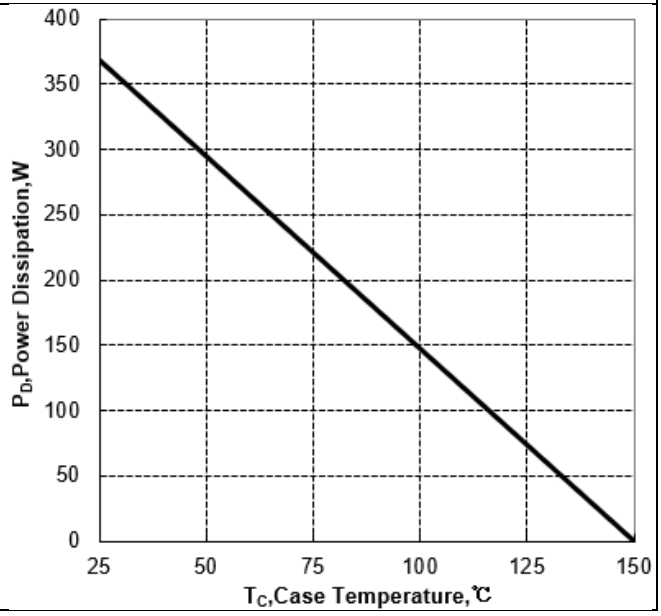


Figure 3. Collector Current vs Case Temperature

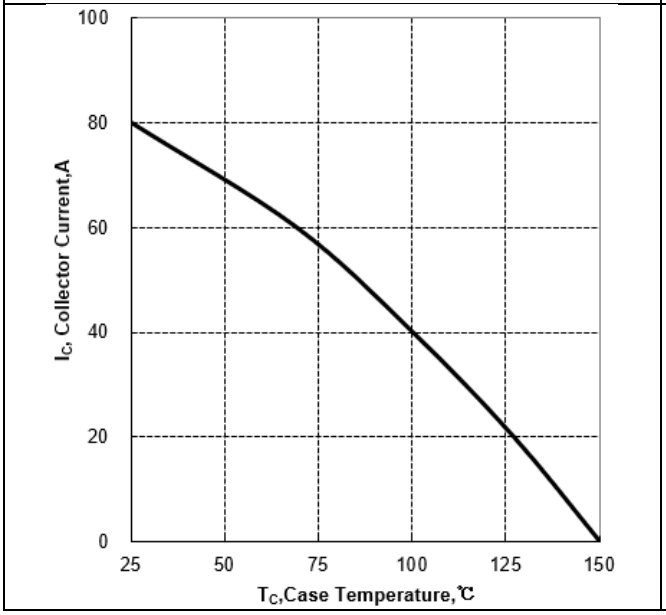


Figure 4. Typical Transfer Characteristics

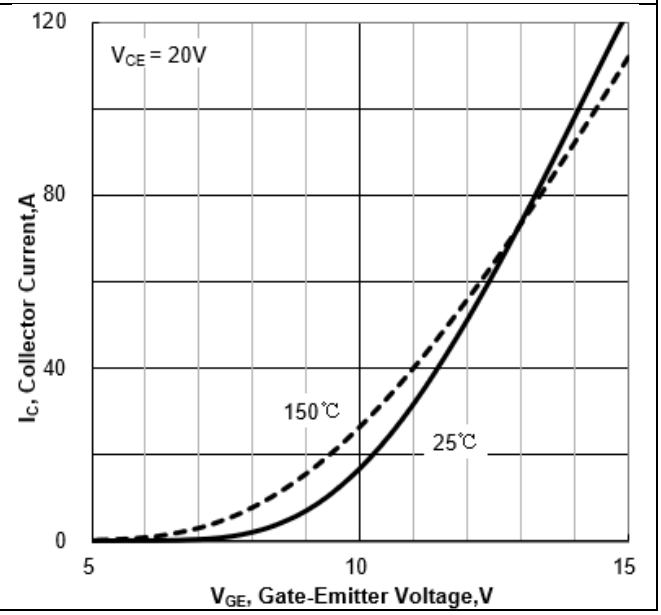


Figure 5. Typical Output Characteristics(T=25℃)

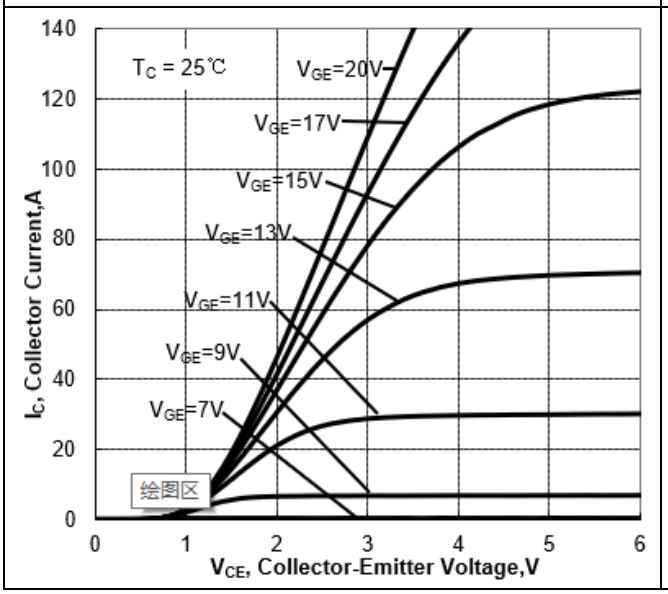


Figure 6. Typical Output Characteristics(T=150℃)

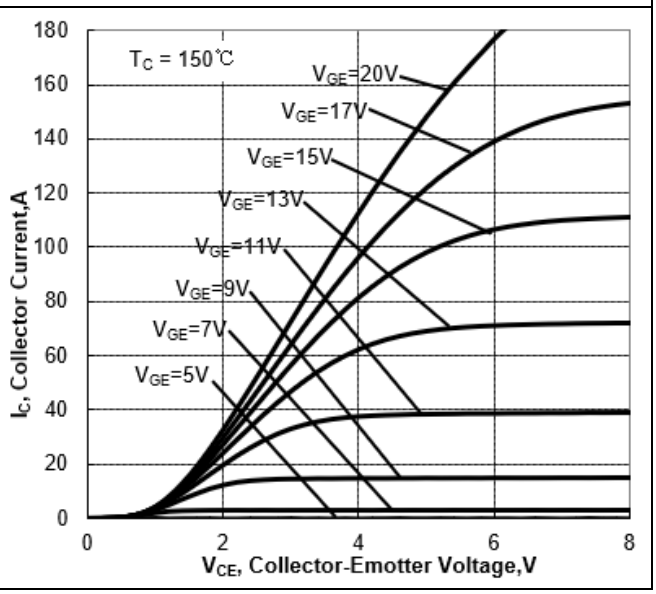


Figure 7. Typical Collector-Emitter Saturation Voltage vs Junction Temperature

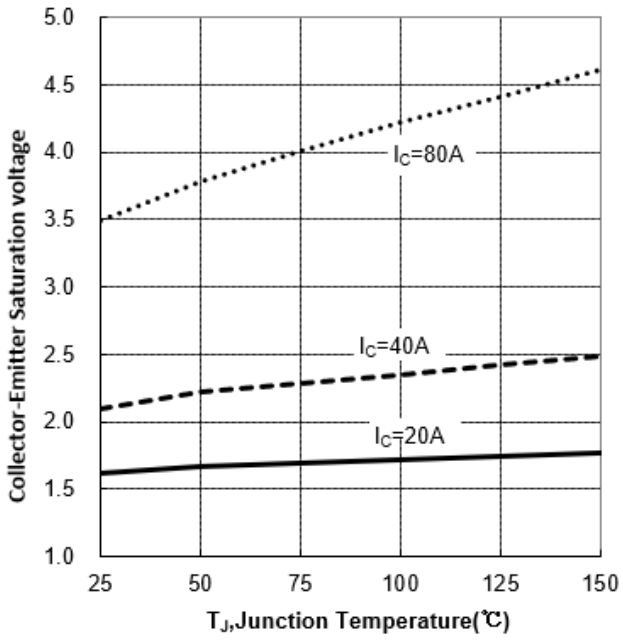


Figure 8. Typical Transfer Characteristics

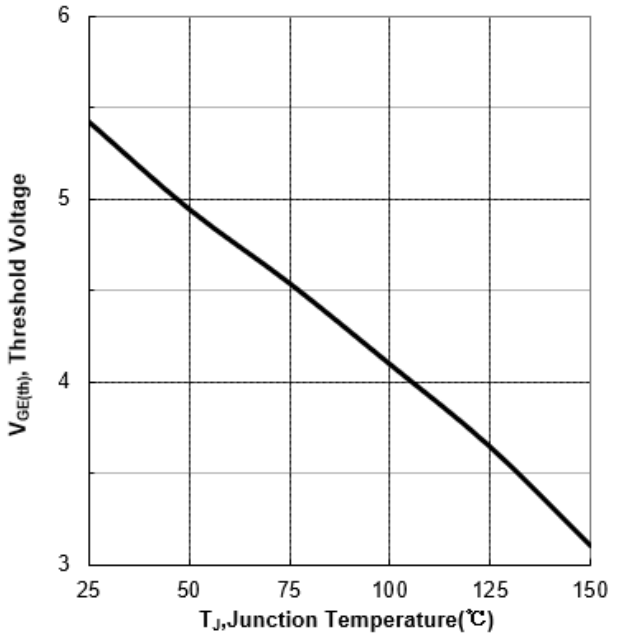


Figure 9. Typical Gate Charge

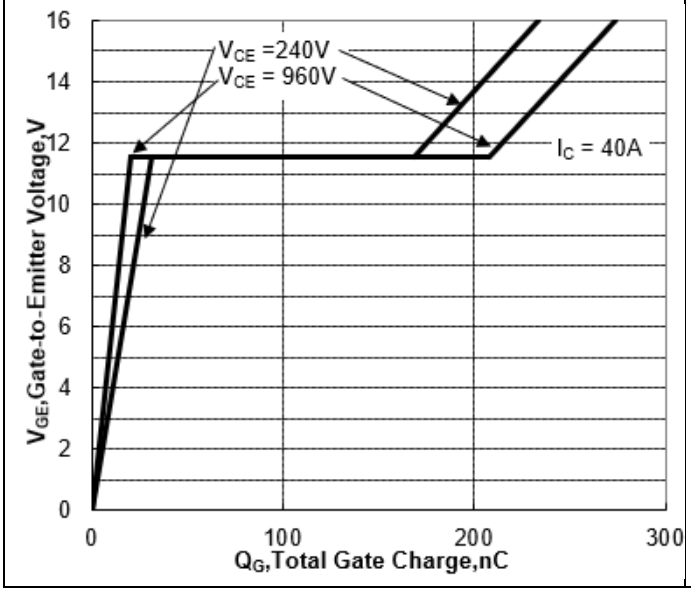


Figure 10. Typical Capacitance vs Collector-Emitter Voltage

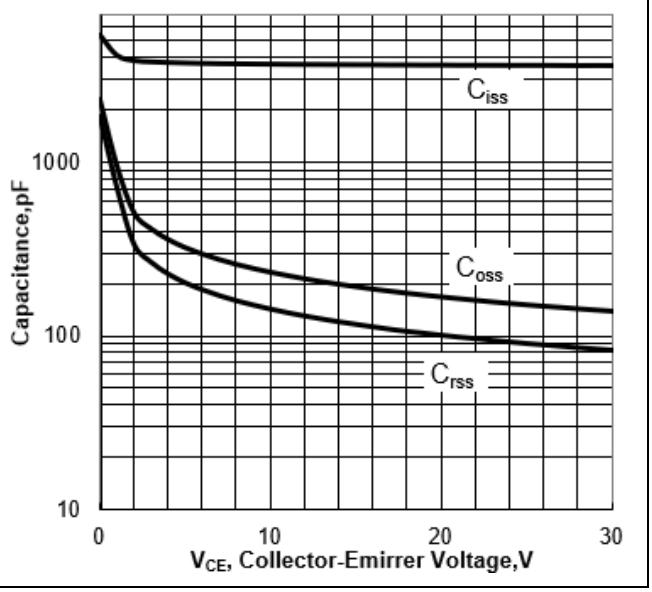


Figure 11. IGBT Transient Thermal Impedance vs Pulse Width

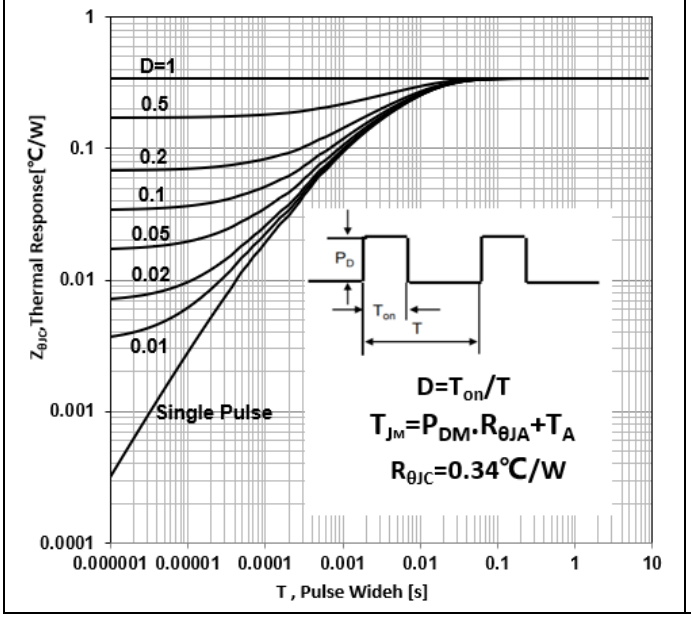


Figure 12. Diode Transient Thermal Impedance vs Pulse Width

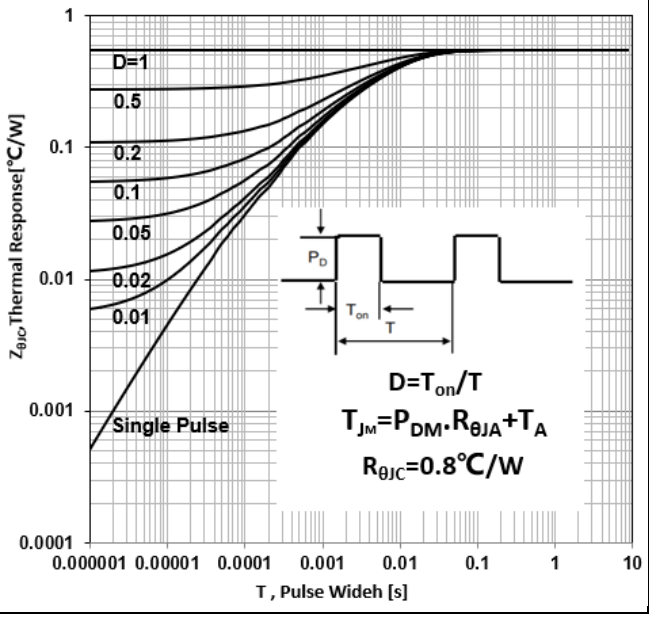
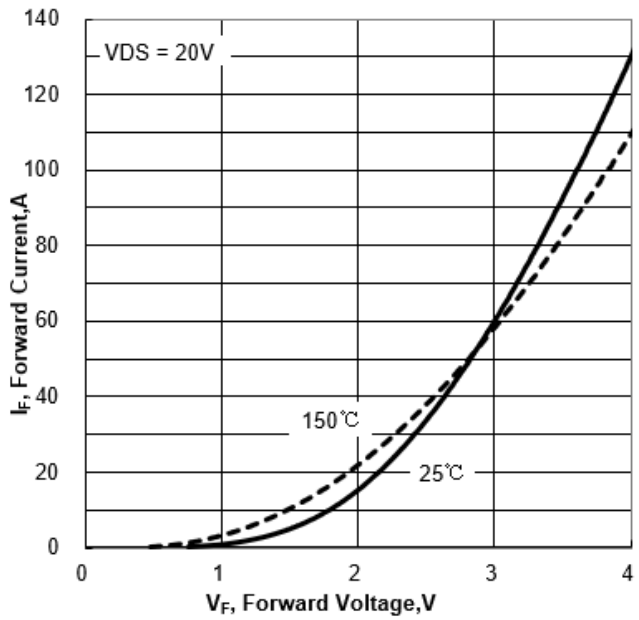


Figure 13. Typical Diode Forward Current vs Forward Voltage



6. Test Circuit and Waveform

Figure 14. Inductive Switching Test Circuit

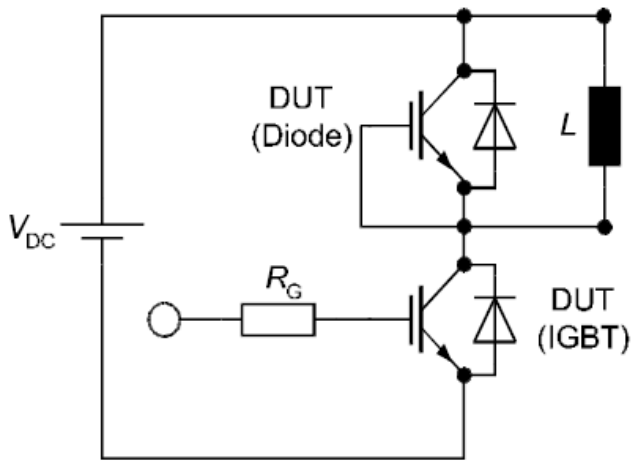


Figure 15. Definition of switching times

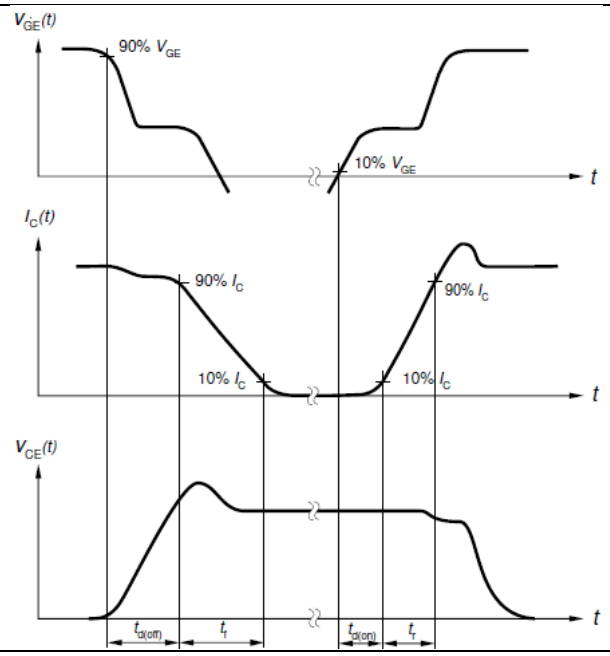


Figure 16. Definition of switching losses

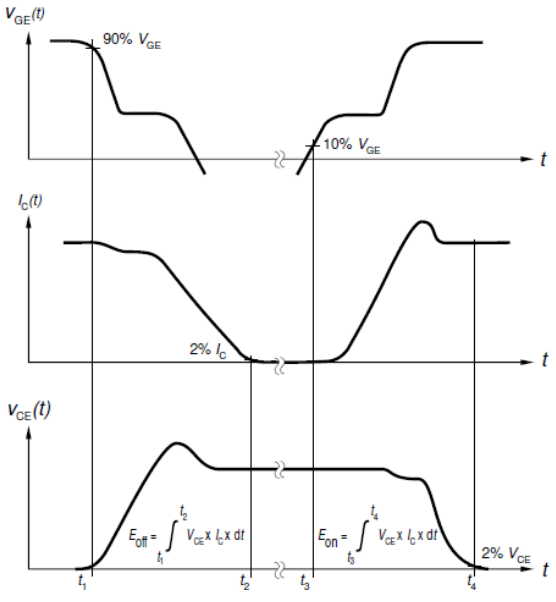
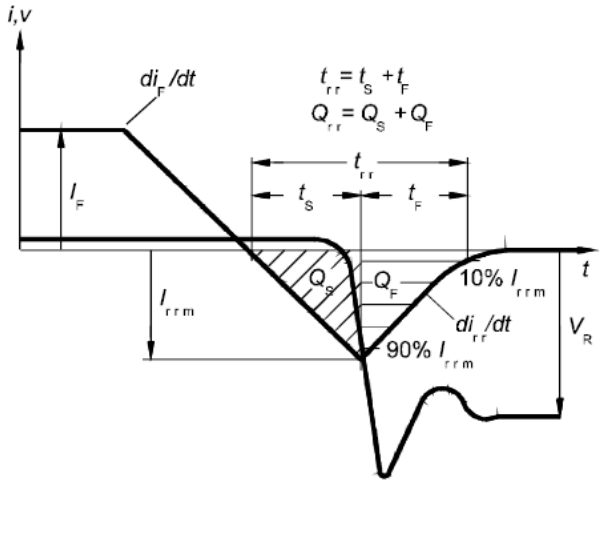
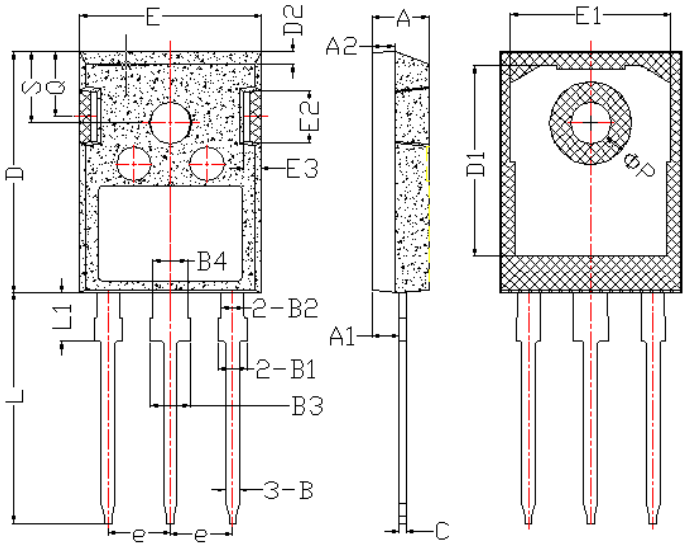


Figure 17. Inductive Switching Waveforms



7. Package Description



Items	Values(mm)	
	MIN	MAX
A	4.90	5.16
A1	2,27	2.53
A2	1.85	2.11
B	1.07	1.33
B1	1.90	2.41
B2	1.75	2.15
B3	2.87	3.38
B4	2.87	3.13
C	0.55	0.68
D	20.82	21.10
D1	16.25	17.65
D2	1.05	1.35
E	15.70	16.03
E1	13.10	14.15
E2	3.68	5.10
E3	1.68	2.60
e	5.44	
L	19.80	20.31
L1	4.17	4.47
ΦP	3.50	3.70
Q	5.49	6.00
S	6.04	6.30

TO-247 Package

联系我们

深圳市泰德兰电子有限公司（简称：泰德兰），是一家专业代理国内外品牌电子元器件代理商。“泰德兰”的目标是为客户提供高性价比的产品和服务。我们一贯坚持：“品质第一、价格合理、交货快捷、 服务至上、凝聚客户”的发展理念和宗旨以向采购商提供最满意的服务为己任，向采购商提供规范化、专业化、多元化、全方位的优质服务，真诚欢迎海内外直接用户前来洽谈合作，共谋发展！也希望能与电子界同行进行广泛的交流合作共同为行业的繁荣发展做出贡献！

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