



JT075N065GHED

主要参数 MAIN CHARACTERISTICS

I _c	75A
V _{CE}	650V
V _{cesat-typ}	1.7V

用途

- 逆变器
- UPS 电源

APPLICATIONS

- General purpose inverters
- UPS

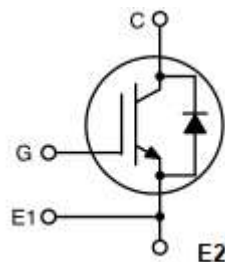
产品特性

- 低栅极电荷
- Trench FS 技术
- RoHS 产品

FEATURES

- Low gate charge
- Trench FS Technology
- RoHS product

封装 Package



E1: Kelvin Emitter
E2: Power Emitter



TO-247-4L

订货信息 ORDER MESSAGE

订货型号 Order codes	印 记 Marking	封 装 Package
无卤-条管 Halogen-Free-Tube		
JT075N065GHED-GH-BR	JT075N065GHED	TO-247-4L

绝对最大额定值 ABSOLUTE RATINGS ($T_C=25^\circ\text{C}$)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
最高集电极-发射极直流电压 Collector-emitter voltage	V_{CE}	650	V
*连续集电极电流 Collector current-continuous	I_C	150($T_C=25^\circ\text{C}$)	A
		75($T_C=100^\circ\text{C}$)	A
最大脉冲集电极极电流 (注1) Collector current – pulse (note 1)	I_{CM}	300	A
二极管正向测试电流 Diode RMS forward current	I_F	150($T_C=25^\circ\text{C}$)	A
		75 ($T_C=100^\circ\text{C}$)	A
二极管正向不重复峰值电流 (浪涌电流) Surge non repetitive forward current $t_p=10$ ms sinusoidal	I_{FSM}	300	A
最高栅极发射极电压 Gate-emitter voltage	V_{GE}	± 20	V
安全工作区 Turn-off safe area	-	300	A
耗散功率 Power dissipation	P_D $T_C=25^\circ\text{C}$	520	W
最高结温及存储温度 Operating and storage temperature range	T_J, T_{STG}	$-55\sim+150$	$^\circ\text{C}$
引线最高焊接温度 Maximum lead temperature for soldering purposes	T_L	300	$^\circ\text{C}$

*连续集电极电流由最高结温限制

*Collector current limited by maximum junction temperature





电特性 ELECTRICAL CHARACTERISTICS

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
关态特性 Off –Characteristics						
集电极-发射极击穿电压 Collector-emitter voltage	BV_{CES}	$I_C=250\mu A, V_{GE}=0V$	650	-	-	V
击穿电压温度特性 Breakdown voltage temperature Coefficient	$\Delta BV_{CES}/\Delta T_J$	$I_C=0.5mA$, referenced to 25°C	-	0.6	-	V/°C
零栅压下集电极漏电流 Zero gate voltage collector current	I_{CES}	$V_{CE}=650V, V_{GE}=0V, T_C=25^\circ C$	-	-	0.2	mA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GESF}	$V_{CE}=0V, V_{GE}=20V$	-	-	200	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GESR}	$V_{CE}=0V, V_{GE}=-20V$	-	-	-200	nA
通态特性 On-Characteristics						
阈值电压 Gate threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}, I_C=250\mu A$	4.5	-	6.5	V
饱和压降 Collector-emitter saturation voltage	V_{CESAT}	$V_{GE}=15V, I_C=75A$ $T_C=25^\circ C$	-	1.7	2.4	V
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{ies}	$V_{CE}=25V,$ $V_{GE}=0V,$ $f=1.0MHz$	-	5012	-	pF
输出电容 Output capacitance	C_{oes}		-	430	-	pF
反向传输电容 Reverse transfer capacitance	C_{res}		-	99.6	-	pF
栅极电荷总量 Total gate charge	Q_g	$V_{CC}=520V, I_C=75A, V_{GE}=15V$ $T_C=25^\circ C$	-	170	-	nC
栅极-反射极 Gate to emitter charge	Q_{ge}		-	43	-	
栅极-集电极 Gate to collector charge	Q_{gc}		-	78	-	
栅极电阻-Gate resistance	R_g	$f=1MHz$, open collector	-	3.2	-	Ω
短路电流-short current	I_{sc}	$V_{GE}=15V, V_{CE}=300V, t_{sc}\leq 10\mu s$	-	310	-	A





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
开启延迟时间 Turn-on delay time	$t_d(\text{on})$	$V_{CC}=400V, I_c=75A, R_G=10\Omega$ $V_{GE}=15V$ $T_C=25^\circ C$	-	88	-	ns
上升时间 Turn-on rise time	t_r		-	150	-	ns
关断延迟时间 Turn-off delay time	$t_d(\text{off})$		-	168	-	ns
下降时间 Turn-off fall time	t_f		-	98	-	ns
开通损耗 Turn-on energy	Eon		-	1.3	-	mJ
关断损耗 Turn-off energy	Eoff		-	1.8	-	mJ
总开关损耗 Total switching energy	Etot		-	3.1	-	mJ
开启延迟时间 Turn-on delay time	$t_d(\text{on})$	$V_{CC}=400V, I_c=75A, R_G=10\Omega$ $V_{GE}=15V$ $T_C=150^\circ C$	-	82	-	ns
上升时间 Turn-on rise time	t_r		-	155	-	ns
关断延迟时间 Turn-off delay time	$t_d(\text{off})$		-	190	-	ns
下降时间 Turn-off fall time	t_f		-	99	-	ns
开通损耗 Turn-on energy	Eon		-	2.5	-	mJ
关断损耗 Turn-off energy	Eoff		-	2.2	-	mJ
总开关损耗 Total switching energy	Etot		-	4.7	-	mJ

反并联二极管特性及最大额定值 Anti-Parallel Diode Characteristics and Maximum Ratings

正向压降 Diode forward voltage	V_F	$V_{GE}=0V, I_F=75A$	-	2.2	2.7	V
反向恢复时间 Diode reverse recovery time	t_{rr}	$V_{GE}=0V, V_R=200V, I_F=75A$ $di_F/dt=200A/\mu s$ $T_C=25^\circ C$	-	24.5	-	ns
反向恢复电荷 Diode reverse recovery charge	Q_{rr}		-	20.6	-	nC
反向恢复电流 Diode reverse recovery current	I_{rrm}		-	1.64	-	A
反向恢复时间 Diode reverse recovery time	t_{rr}	$V_{GE}=0V, V_R=200V, I_F=75A$ $di_F/dt=200A/\mu s$ $T_C=150^\circ C$	-	195	-	ns
反向恢复电荷 Diode reverse recovery charge	Q_{rr}		-	731	-	nC
反向恢复电流 Diode reverse recovery current	I_{rrm}		-	8.3	-	A





项 目 Parameter	符 号 Symbol	Max	单 位 Unit
结到管壳的热阻 Thermal Resistance, Junction to case IGBT	$R_{th(j-c)}$	0.24	$^{\circ}\text{C}/\text{W}$
结到管壳的热阻 Thermal Resistance, Junction to case diode	$R_{th(j-c)}$	0.38	$^{\circ}\text{C}/\text{W}$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	33	$^{\circ}\text{C}/\text{W}$

注释:

1: 脉冲宽度由最高结温限制

Notes:

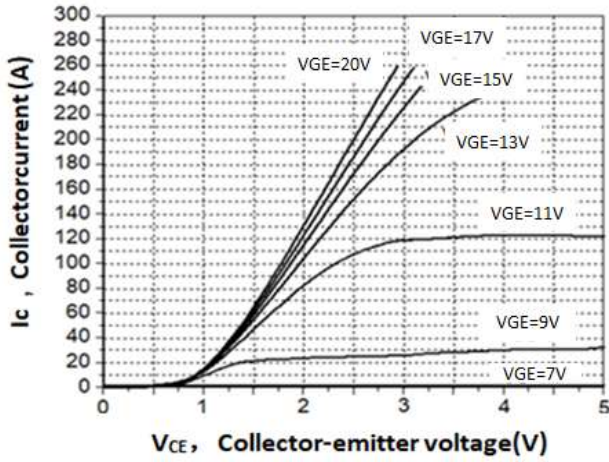
1: Pulse width limited by maximum junction temperature



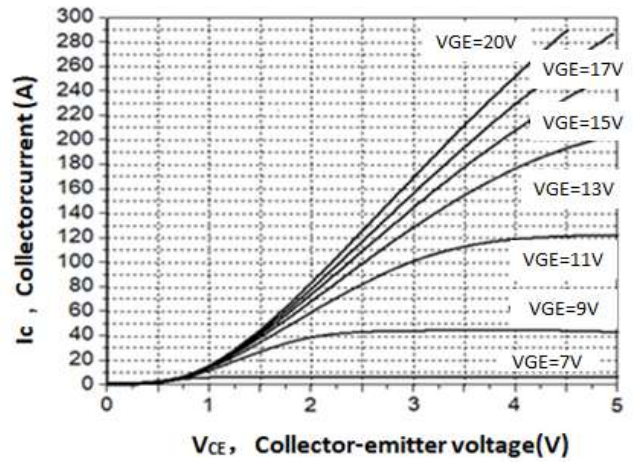


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

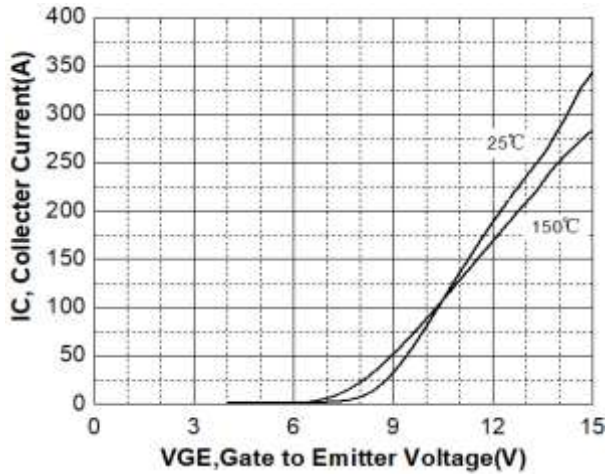
Output Characteristics (25°C)



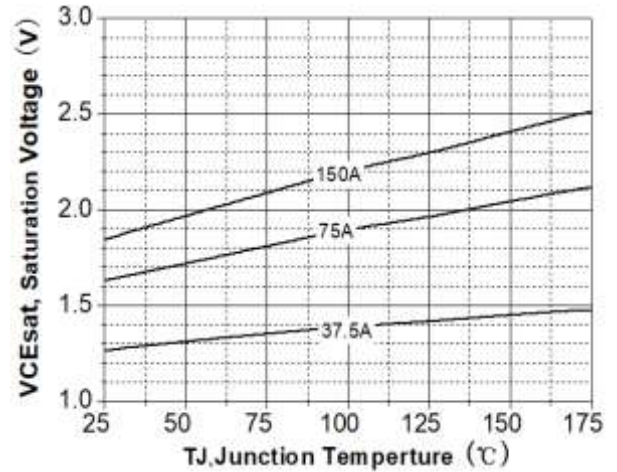
Output Characteristics (150°C)



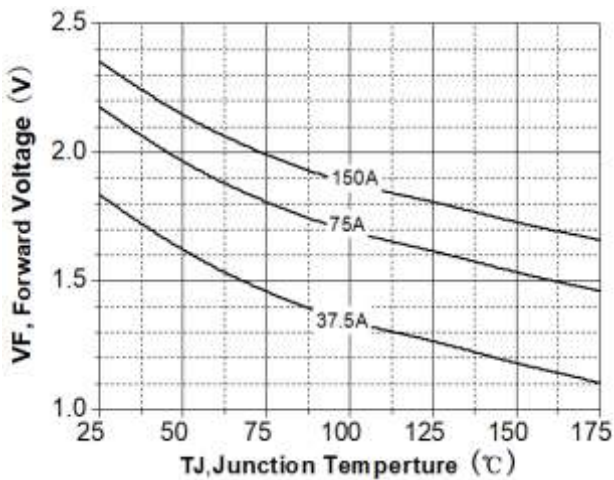
Transfer Characteristics



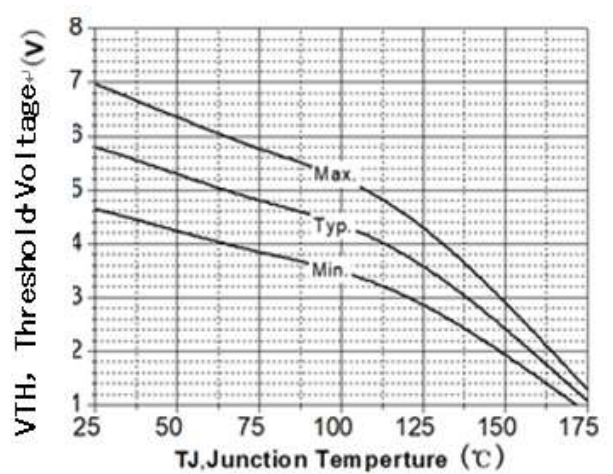
Vcesat vs. Tj



VF vs. Tj

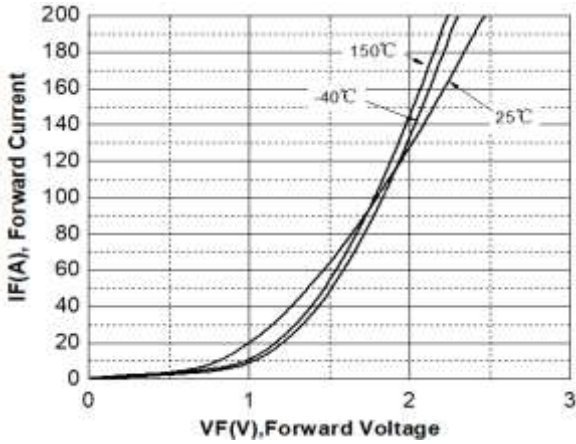


VTH vs. Tj



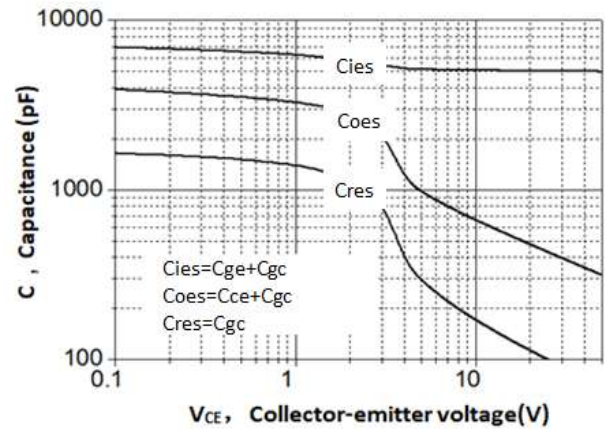


Diode Characteristic



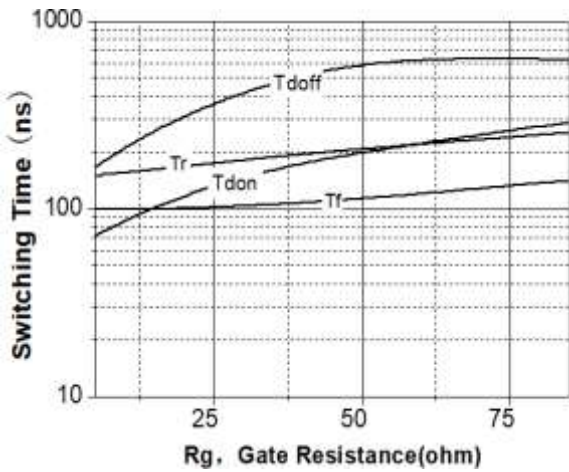
Capacitance Characteristic

Vce=25V, VGE =0V, f=1.0MHZ



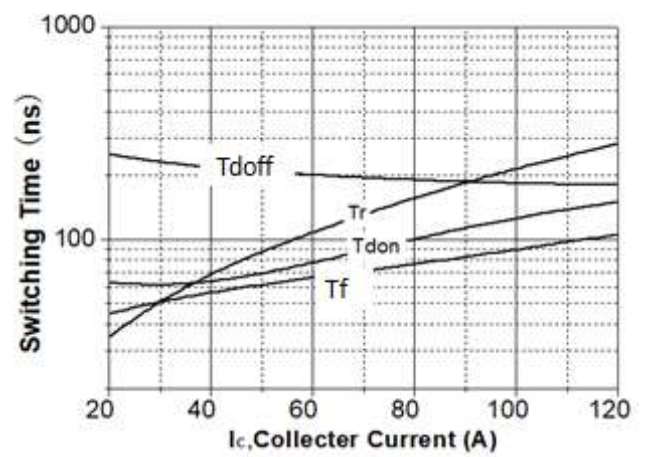
Switching Time vs. Rg(150°C)

VGE=15V, VCE=400V, IC=75A



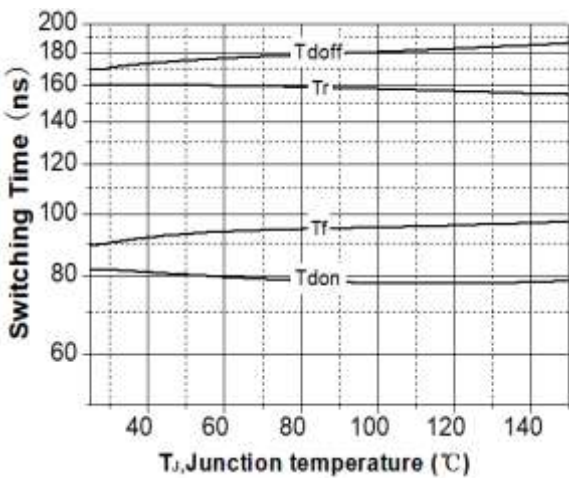
Switching Time vs. IC(150°C)

VCE=400V, VGE=15V, RG=10Ω



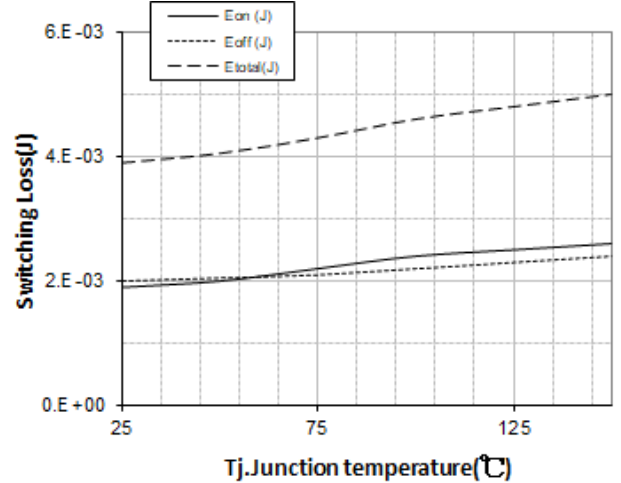
Switching Time vs. Tj

VGE=15V, VCE=400V, IC=75A, RG =10Ω



Switching Loss vs. Tj

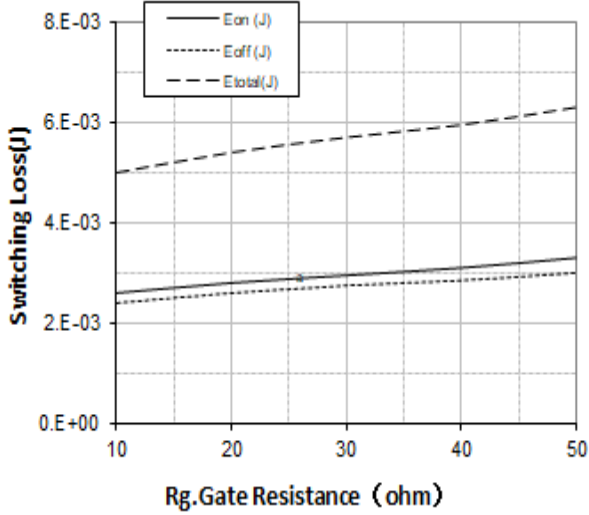
VGE=15V, VCE=400V, IC=75A, RG =10Ω





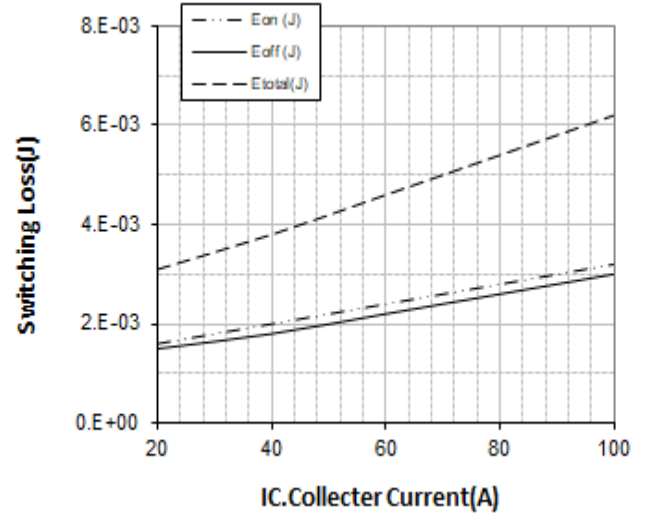
Switching Loss vs. Rg(150°C)

VGE=15V, VCE=400V, IC=75A



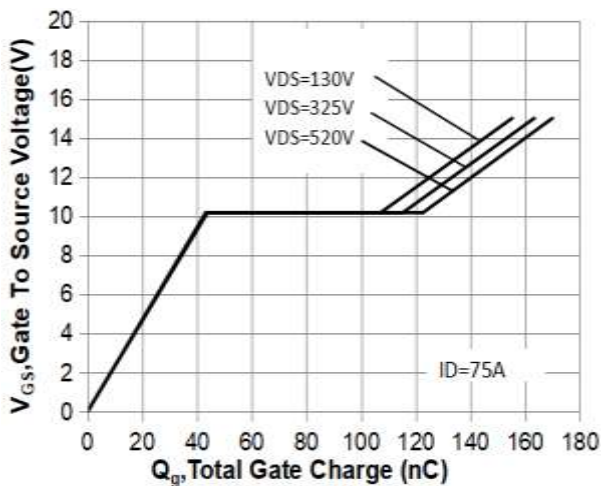
Switching Loss vs. IC(150°C)

VGE=15V, VCE=400V, RG =10Ω



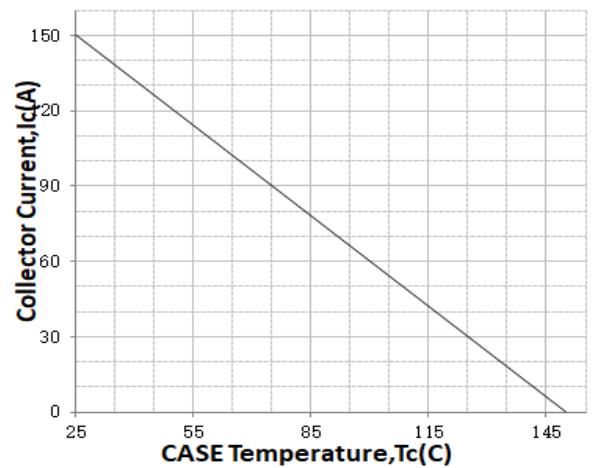
Gate Charge Characteristics

VGE=15V, IC=75A

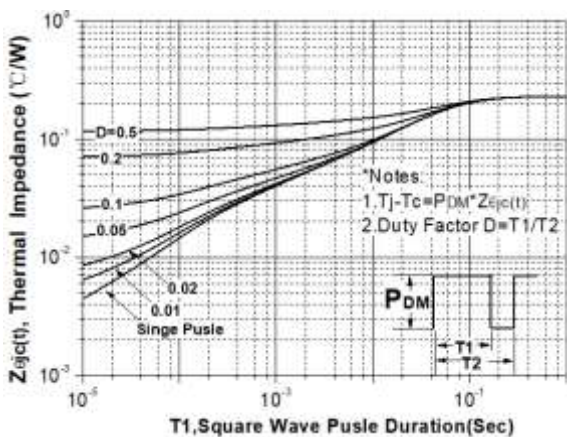


Collector current vs. case temperature

VGE=15V, Tj≤150°C

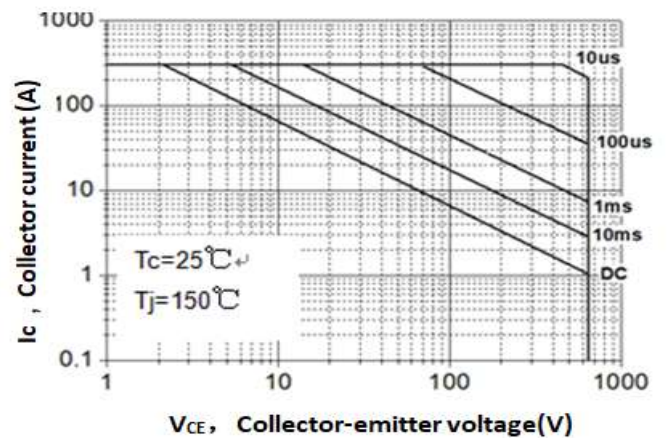


Transient Thermal Impedance for TO-247



Safe Operating Area For TO-247

Tc=25°C, VGE=15V, Tj≤150°C

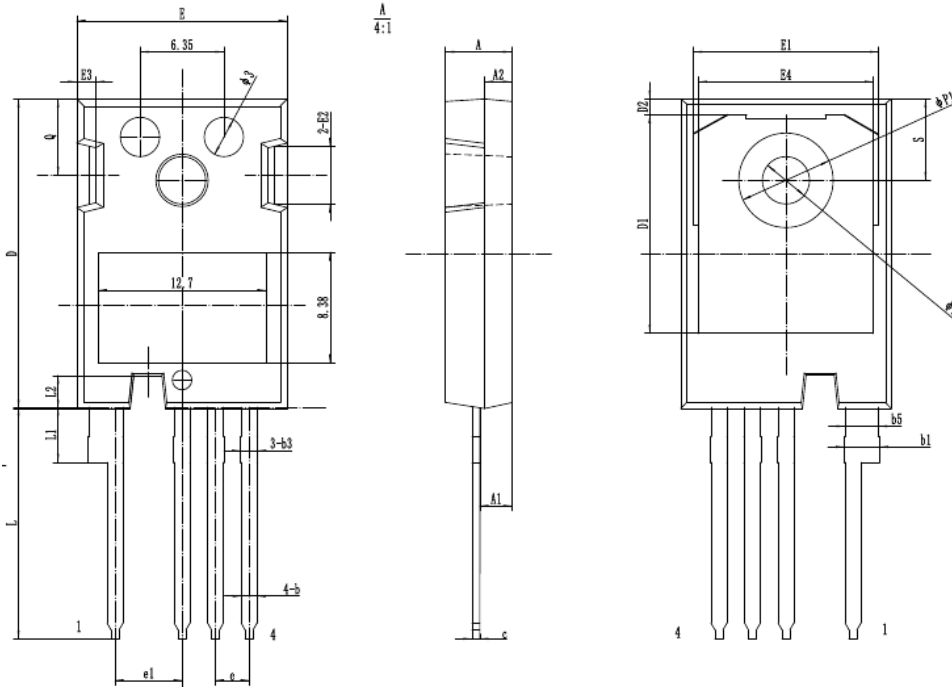




外形尺寸 PACKAGE MECHANICAL DATA

TO-247-4L

单位 Unit: mm



SYMBOL	mm		
	MIN	NOM	MAX
*A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.00	2.16
*b	1.07	1.20	1.33
b1	2.39	2.67	2.94
b3	1.07	1.30	1.60
b5	2.39	2.53	2.69
*c	0.55	0.60	0.68
*D	23.30	23.45	23.60
D1	16.25	16.55	17.65
D2	0.95	1.19	1.25
*E	15.75	15.94	16.13
E1	13.10	14.02	14.15
E2	3.68	4.40	5.10
E3	1.00	1.45	1.90
E4	12.38	13.26	13.43
*e		2.54BSC	
e1		5.08BSC	
*L	17.31	17.57	17.82
*L1	3.97	4.19	4.37
*L2	2.30	2.50	2.65
*φP	3.51	3.61	3.65
*φP1		7.19REF	
*Q	5.49	5.79	6.00
S	6.04	6.17	6.30



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