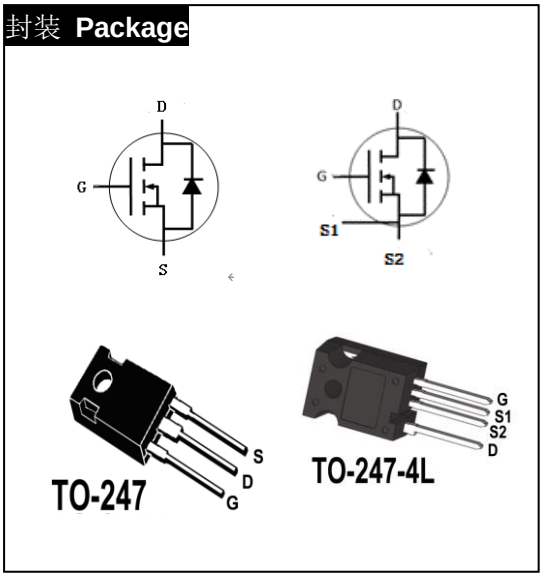
MG120R015B

主要参数 MAIN CHARACTERISTICS

ID	129A
VCE	1200V
Rdson-typ (@Vgs=18V)	15 mΩ
Qg-typ	245 nC

封装 Package



用途 APPLICATIONS

- ●光伏逆变器 ●Solar Inverters
- ●开关模式电源 ●Switch Mode Power Supplies
- ●高压 DC/DC 转换器 ●High Voltage DC/DC Converters
- ●电池充电器 ●Battery Chargers
- ●电动驱动 ●Motor Drives
- ●脉冲电源应用 ●Pulsed Power applications

产品特性 FEATURES

- ●高阻断电压 ●High Blocking Voltage
- ●低导通电阻 ●Low On-Resistance
- ●低电容高速开关 ●High Speed Switching with Low Capacitances
- ●易于驱动 ●Easy to Parallel and Simple to Drive
- ●雪崩强度高 ●Avalanche Ruggedness
- ●RoHS 产品 ●RoHS product

订货信息 ORDER MESSAGE

订 货 型 号 Order codes 无卤-条管 Halogen-Free-Tube	印 记 Marking	封 装 Package
MG120R015B-GE-BR	MG120R015B	TO-247
MG120R015B-GH-BR	MG120R015B	TO-247-4L

绝对最大额定值 ABSOLUTE RATINGS (Tc=25°C)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit	测试条件 Tests conditions
最高漏极－源极直流电压 Drain-Source Voltage	V_{DSmax}	1200	V	V_{GS}=0V, I_D=100μA
最高栅源电压 Gate-Source Voltage	V_{GSmax}	-10/+22	V	Absolute maximum values
工作栅源电压 Gate-Source Voltage	V_{GSop}	-5/+18	V	Recommended operational values
连续漏极电流 Drain Current -continuous	I_D	129	A	V_{GS}=18V, T_C=25°C
		91	A	V_{GS}=18V, T_C=100°C
最大脉冲漏极电流 Drain Current - pulse	I_{DM}	291 168	A	T_C=25°C Pulse width limited by Tjmax T_C=125°C Pulse width limited by Tjmax
耗散功率 Power Dissipation	P_D	500	W	T_C=25°C
单脉冲雪崩能量 Single Pulsed Avalanche Energy	E_{AS}	850	mJ	T_C = 25℃, V_D=50V, L=0.5mH, I_{AS}=58A, V_{GS}=18V
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	-55～+175	℃	
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	260	℃	

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
漏一源击穿电压 Drain-Source Voltage	BV_{DSS}	I_D=100μA, V_{GS}=0V	1200	-	-	V
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D=23mA, T_C=25 °C	2.0	2.78	4.0	V
		V_{DS} = V_{GS}, I_D=23mA, T_C=175 °C	-	1.83	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=1200V, V_{GS}=0V, T_C=25 °C	-	2	50	μA
栅极体漏电流 Gate-body leakage current	I_{GSS}	V_{DS}=0V, V_{GS} =22V	-	-	250	nA
		V_{DS}=0V, V_{GS} =-10V		-	250	nA
导通电阻 Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =18V , I_D=75A, T_C=25 °C	-	15	18	mΩ
		V_{GS} =18V , I_D=75A, T_C=175 °C	-	23	-	mΩ
		V_{GS} =15V , I_D=75A, T_C=25 °C	-	18	-	mΩ
		V_{GS} =18V , I_D=75A, T_C=175 °C		25	-	mΩ
输入电容 Input capacitance	C_{iss}	V_{DS}=800V, V_{GS} =0V, f=1.0MHz ,	-	5270	-	pF
输出电容 Output capacitance	C_{oss}		-	243	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	16	-	pF
导通开关能量 Turn-OnSwitching Energy	E_{ON}	V_{DS}=800V, V_{GS}=-5/18V, I_D= 75A, L=100uH, $R_{G(ext)}$ = 10Ω	-	3585	-	μJ
关断开关能量 Turn-OffSwitching Energy	E_{OFF}		-	1020	-	
延迟时间 Turn-On delay time	td(on)	V_{DS}=800V, V_{GS}=-5/18V, I_D= 75A, L=100uH, $R_{G(ext)}$ = 10Ω	-	77	-	ns
上升时间 Turn-On rise time	tr		-	37	-	ns
延迟时间 Turn-Off delay time	td(off)		-	93	-	ns
下降时间 Turn-Off Fall time	t_f		-	28	-	ns
栅电阻 Intrinsic gate resistance	R_G	f = 1 MHz , V_{AC} = 25 mV	-	1.2	-	Ω
栅一源电荷 Gate-Source charge	Q_{gs}	V_{DD}=800V, V_{GS}=-5/18V I_D = 75A	-	73	-	nC
栅一漏电荷 Gate-Drain charge	Q_{gd}		-	24	-	
栅极电荷总量 Total Gate Charge	Q_g		-	245	-	

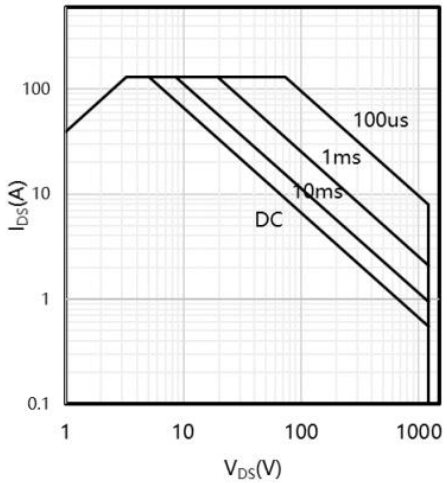
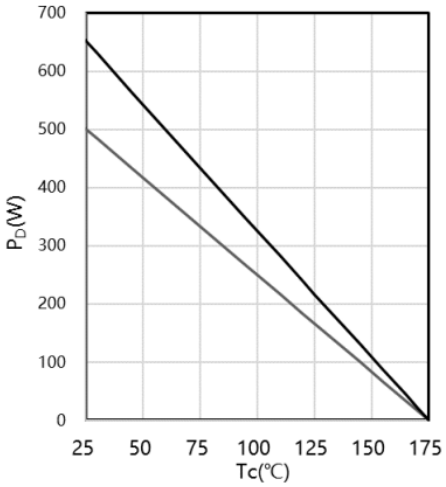
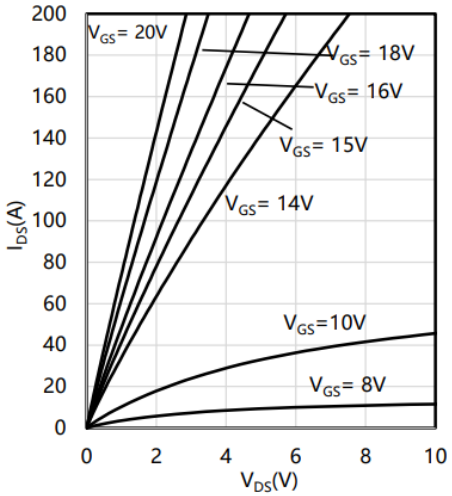
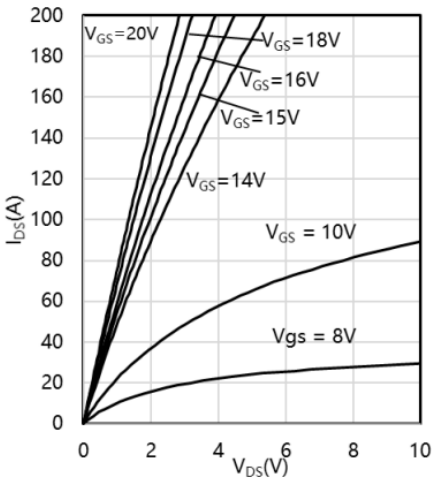
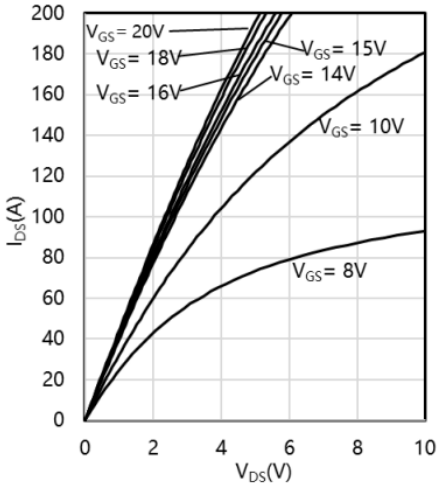
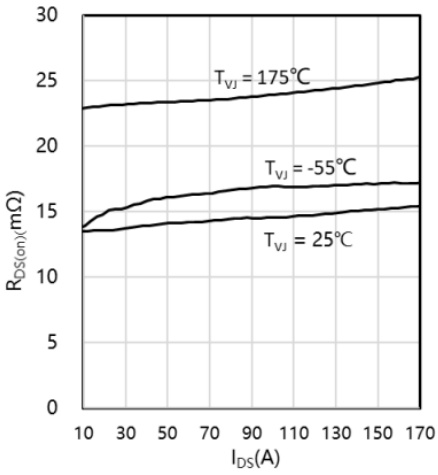
漏一源二极管特性 Drain-Source Diode Characteristics

项　　目 Parameter	符　号 Symbol	测试条件 Tests conditions	典型 Typ	最大 Max	单位 Units
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} =-5V, I_{SD} = 75 A, T_J = 25 ° C	4.9	-	V
		V_{GS} =-5V, I_{SD} =75 A, T_J = 175 ° C	4.3	-	V
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	T_C=25 ° C T_C=125 ° C	-	104 44	A
反向恢复时间 Reverse recovery time	t_{rr}	I_{SD} = 75 A, V_{DD}=800V, V_{GS} = -5V, di/dt=1000A/μs	39.4	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		370	-	nC
峰值反向恢复电流 Peak Reverse Recovery Current	Irrm		16.4	-	A

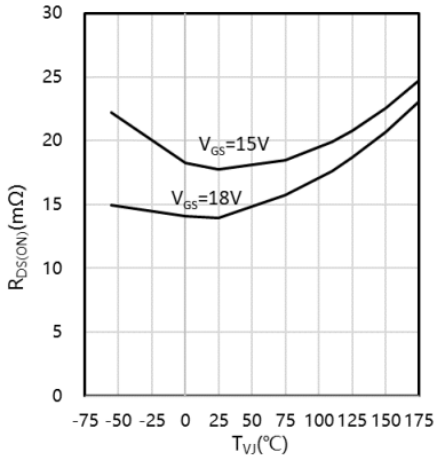
热特性 THERMAL CHARACTERISTIC

项　　目 Parameter	符　号 Symbol	典型 Typ	单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	0.30	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	40	℃/W

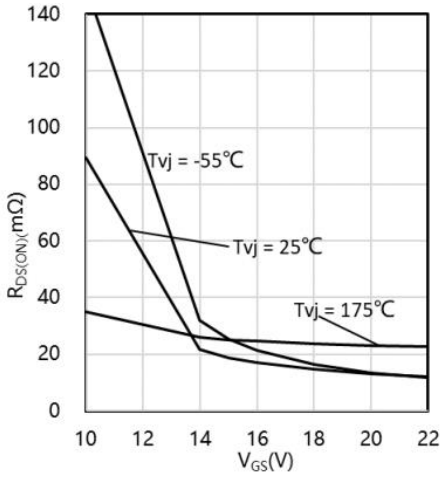
典型性能 Typical Performance

Safe Operating Area	Total Power Dissipation
	
Output Characteristics T_J = -55 °C	Output Characteristics T_J = 25 °C
	
Output Characteristics T_J = 175 °C	Typical on-state resistance as a function of drain current
	

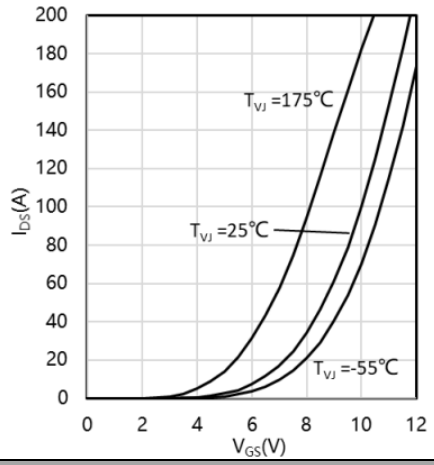
Typical on-state resistance as a function of temperature



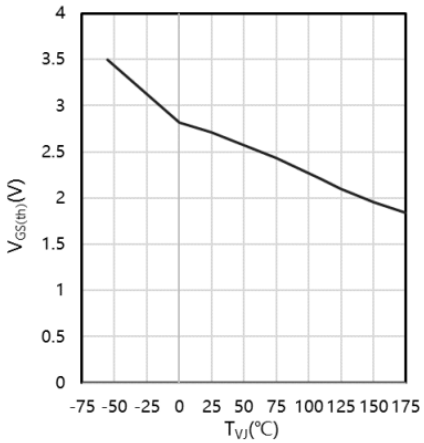
Typical on-state resistance as a function of V_{GS}



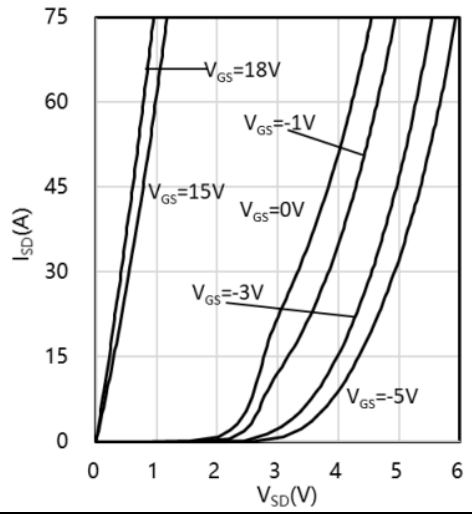
Typical transfer characteristic



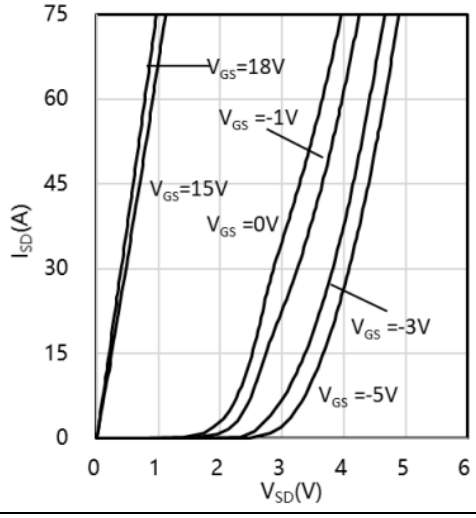
Typical gate-source threshold voltage as a function of junction temperature



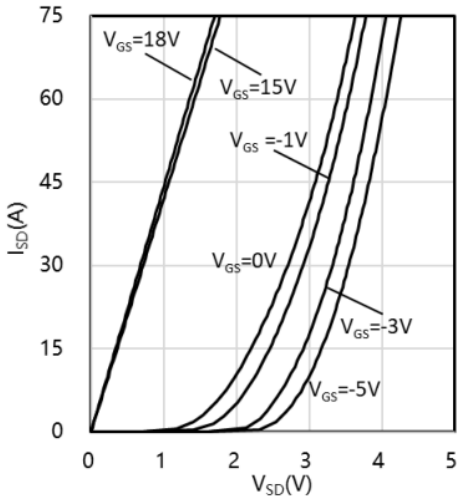
Typical reverse drain current as function of reverse drain voltage, V_{GS} as parameter $I_{SD} = f(V_{SD})$, T_{VJ} = -55 ° C



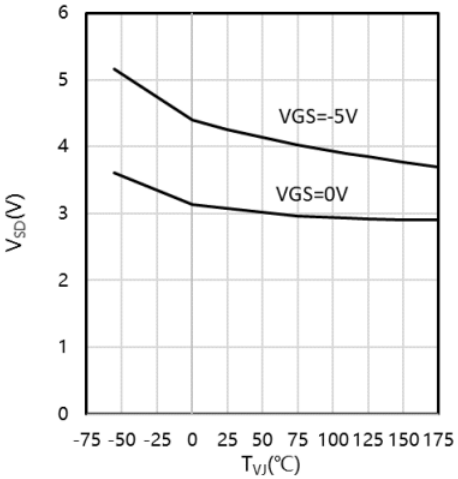
Typical reverse drain current as function of reverse drain voltage, V_{GS} as parameter $I_{SD} = f(V_{SD})$, T_{VJ} = 25 ° C



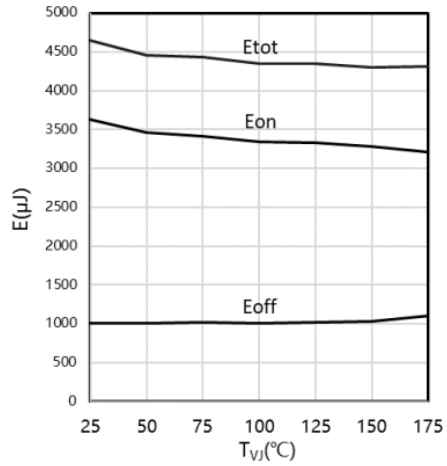
Typical reverse drain current as function of reverse drain voltage, V_{GS} as parameter $I_{SD} = f(V_{SD})$, T_{VJ} = 175 ° C



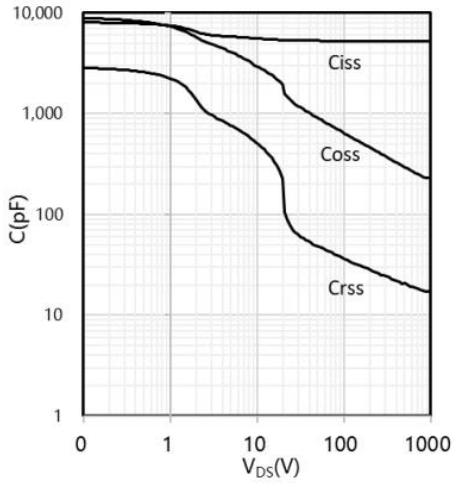
Typical reverse drain voltage as function of junction temperature



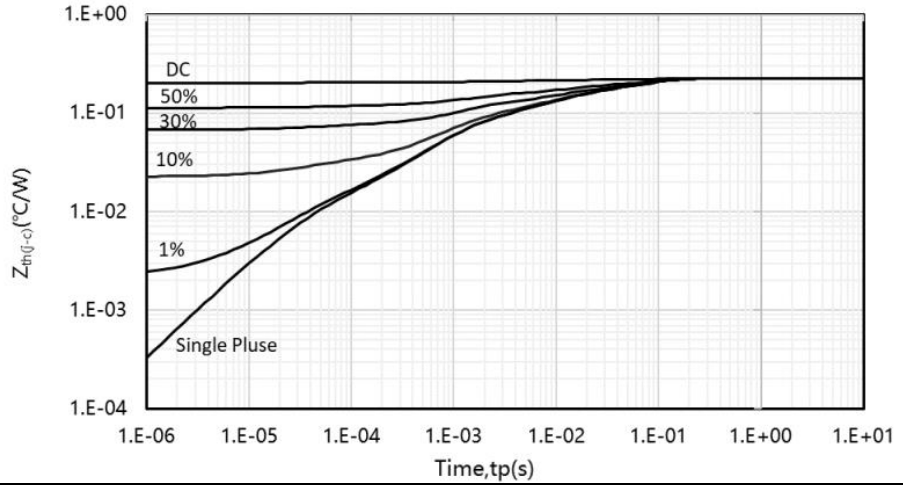
Typical switching energy as a function of junction temperature, 2nd device own body diode



Typical capacitance as a function of drain-source voltage



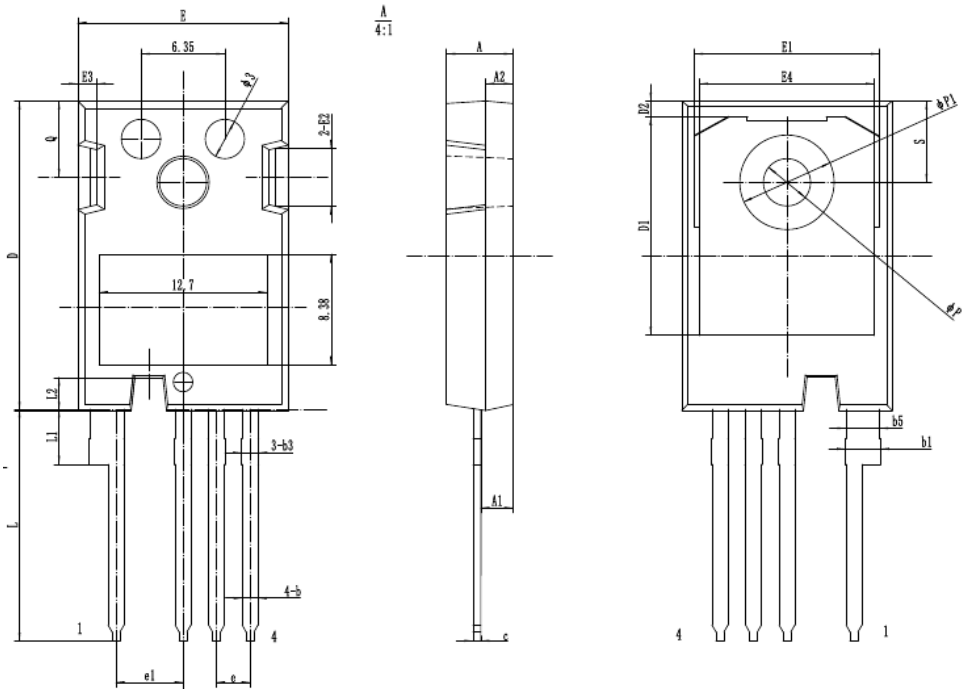
Max. transient thermal resistance (MOSFET) ($Z_{th(j-c,max)}$) = f(t_p), Parameter D = t_p/T



外形尺寸 PACKAGE MECHANICAL DATA

TO-247-4L

单位 Unit：mm

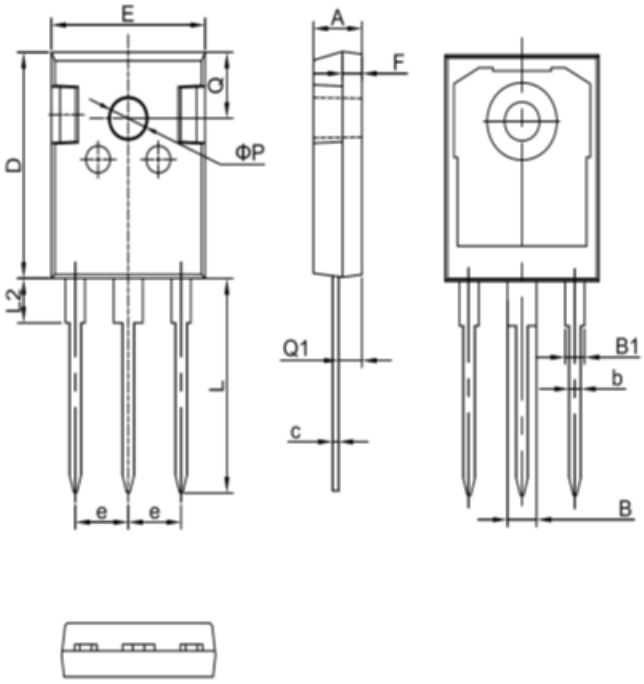


SYMBOL	mm		
	MIN	NOM	MAX
*A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.00	2.16
*b	1.07	1.20	1.33
b1	2.39	2.67	2.94
b3	1.07	1.30	1.60
b5	2.39	2.53	2.69
*c	0.55	0.60	0.68
*D	23.30	23.45	23.60
D1	16.25	16.55	17.65
D2	0.95	1.19	1.25
*E	15.75	15.94	16.13
E1	13.10	14.02	14.15
E2	3.68	4.40	5.10
E3	1.00	1.45	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

外形尺寸 PACKAGE MECHANICAL DATA

TO-247

单位 Unit：mm



符号 symbol	MIN	MAX
A	4.90	5.10
B	2.95	3.35
B1	1.95	2.35
b	1.15	1.35
c	0.50	0.70
D	20.90	21.10
E	15.70	15.90
e	5.34	5.54
F	1.90	2.10
L	19.40	20.40
L2	4.03	4.23
Q	6.00	6.40
Q1	2.30	2.50
P	3.50	3.70

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2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don’t be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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