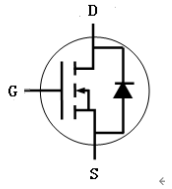
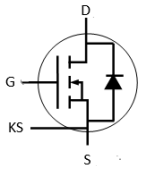
MG120R080

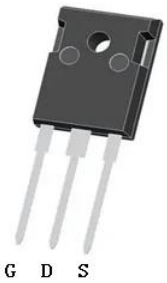
主要参数 MAIN CHARACTERISTICS

I_D	28A
V_{CE}	1200V
Rdson-typ (@Vgs=18V)	80MΩ
Qg-typ	85nC

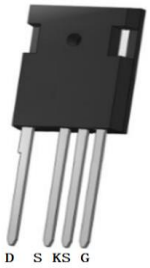
封装 **Package**







TO-247



TO-247-4L

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	印 记 Marking	封 装 Package
无卤-条管 Halogen-Free-Tube		
MG120R080-GE-BR	MG120R080	TO-247
MG120R080-GH-BR	MG120R080	TO-247-4L

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

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/+25	V	Absolute maximum values
工作栅源电压 Gate-Source Voltage	V_{GSop}	-5/+20	V	Recommended operational values
连续漏极电流 Drain Current -continuous	I_D	28	A	V_{GS}=20V, T_C=25˚C
		20	A	V_{GS}=20V, T_C=100˚C
最大脉冲漏极电流 Drain Current - pulse	I_{DM}	60	A	Pulse width limited by Tjmax
耗散功率 Power Dissipation	P_D	166	W	T_C=25˚C, T_J=175˚C
最高结温及存储温度 Operating and Storage Temperature Range	T_J，T_{STG}	-55～+150	℃	
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300	℃	

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－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=5mA, T_C=25 ˚C	2.0	2.4	4	V
		V_{DS} = V_{GS},I_D=5mA, T_C=175 ˚C		1.73		
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	-	1	100	μA
栅极体漏电流 Gate-body leakage current	I_{GSS}	V_{DS}=0V, V_{GS} =20V	-	20	200	nA
导通电阻 Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =20V , I_D=20A, T_C=25 ˚C	-	80	98	mΩ
		V_{GS} =20V , I_D=20A, T_C=150 ˚C		120		mΩ
跨导 Transconductance	g_{fs}	V_{DS} = 20V, I_D=20A, TJ = 25 ˚C	-	7	-	S
		V_{DS} = 20V, I_D=20A, TJ =150 ˚C		6.6		S
输入电容 Input capacitance	C_{iss}	V_{DS}=1000V, V_{GS} =0V, f=1.0MHz ， V_{AC}=25 mV	-	2016	-	pF
输出电容 Output capacitance	C_{oss}		-	17.9	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	72.6	-	pF
导通开关能量 Turn-OnSwitching Energy	E_{ON}	V_{DS}=800V, V_{GS}=-5/20V,I_D= 20A, $R_{G(ext)}$ = 5Ω, L= 142μH	-	0.18	-	mJ
关断开关能量 Turn-OffSwitching Energy	E_{OFF}		-	0.07	-	
延迟时间 Turn-On delay time	td(on)	V_{DD}=800V, V_{GS}=-5/20V I_D =20A, $R_{G(ext)}$ = 5Ω, R_L=40Ω， Timing relative to VDS	-	23	-	ns
上升时间 Turn-On rise time	tr		-	60	-	ns
延迟时间 Turn-Off delay time	td(off)		-	17	-	ns
下降时间 Turn-Off Fall time	t_f		-	12	-	ns
栅电阻 Intrinsic gate resistance	R_G	f = 1 MHz , V_{AC}=25mV	-	2.8	-	Ω
栅－源电荷 Gate-Source charge	Q_{gs}	V_{DD}=800V, V_{GS}=-5/20V I_D = 20A		23		nC
栅－漏电荷 Gate-Drain charge	Q_{gd}			26		
栅极电荷总量 Total Gate Charge	Q_g			85		

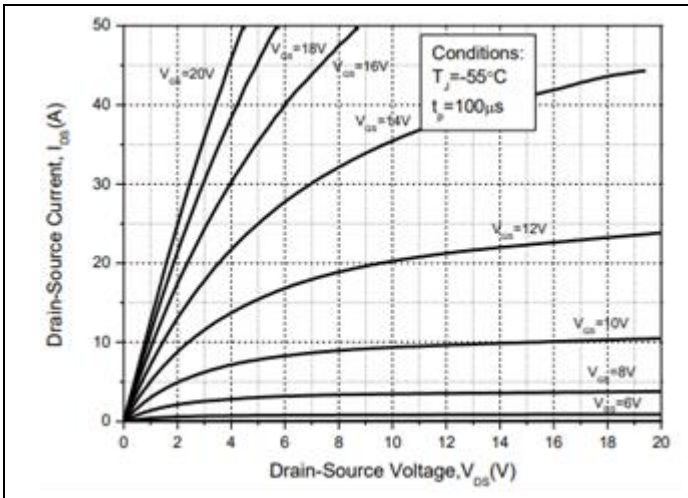
漏一源二极管特性 Drain-Source Diode Characteristics

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} =10 A, T_J = 25 °C	3.5		V
		V_{GS} =-5V, I_{SD} =10 A, T_J = 175 °C	3.3		V
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	T_C=25 °C	-	28	A
反向恢复时间 Reverse recovery time	t_{rr}	V_{GS} =-5V, I_{SD} = 20 A, V_R=800V, dif/dt=1200A/μs	18		ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		80		nC
峰值反向恢复电流 Peak Reverse Recovery Current	Irrm		8		A

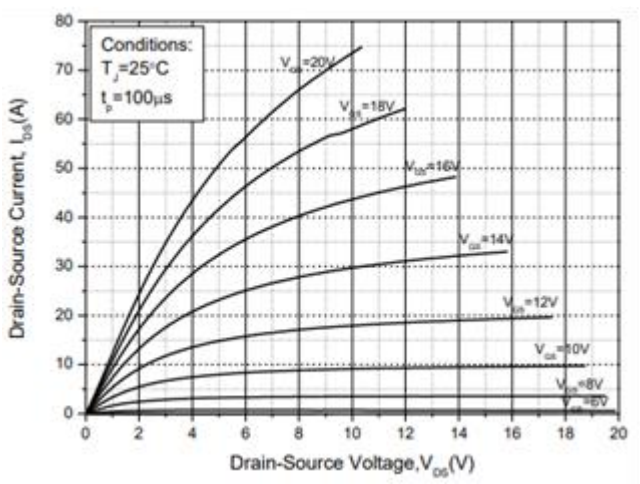
热特性 THERMAL CHARACTERISTIC

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)	0.75	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	35	℃/W

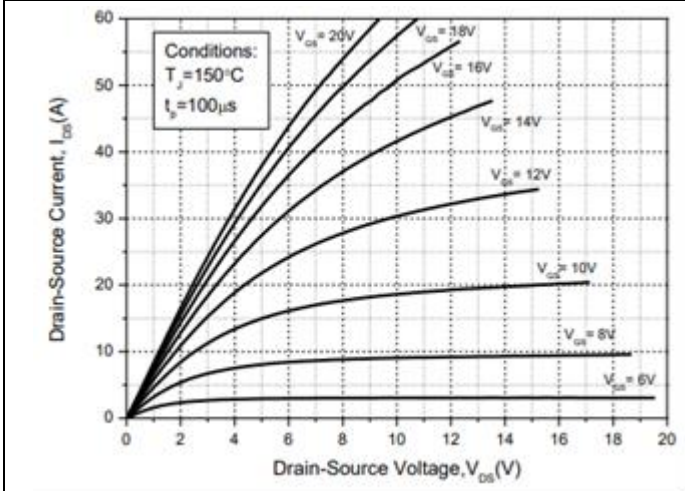
典型性能 Typical Performance



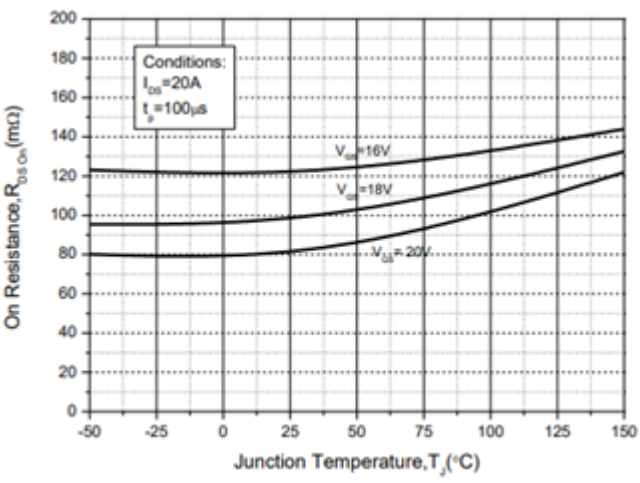
Output Characteristics T_J = -55 ℃



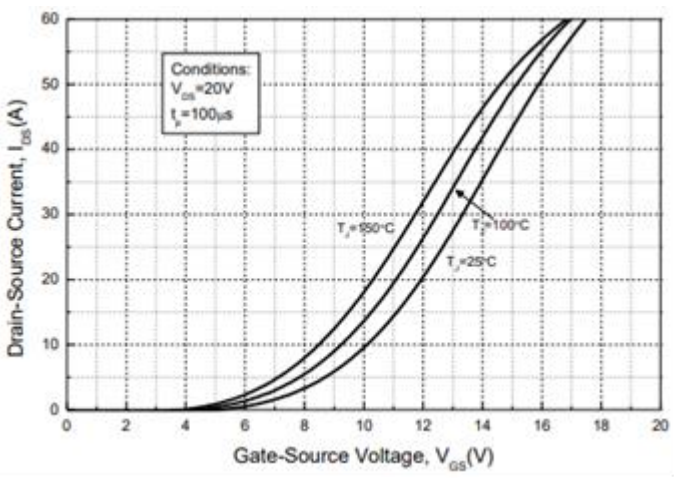
Output Characteristics T_J = 25 ℃



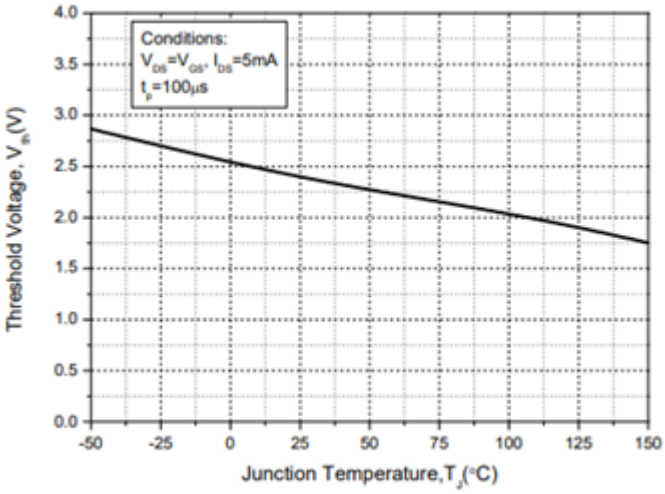
Output Characteristics T_J =150 ℃



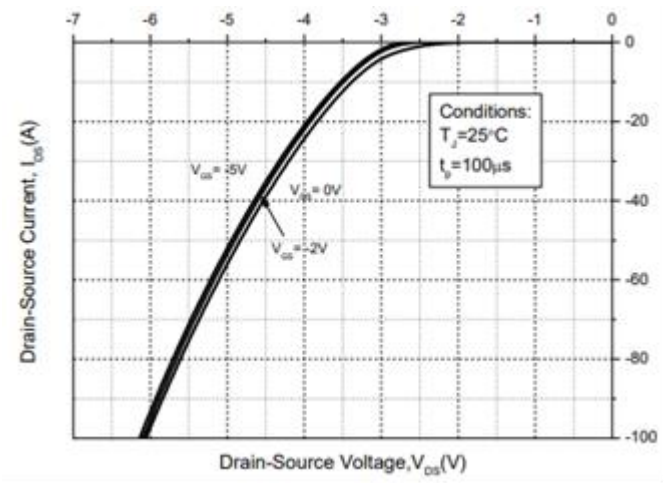
On-Resistance For Various Gate Voltage



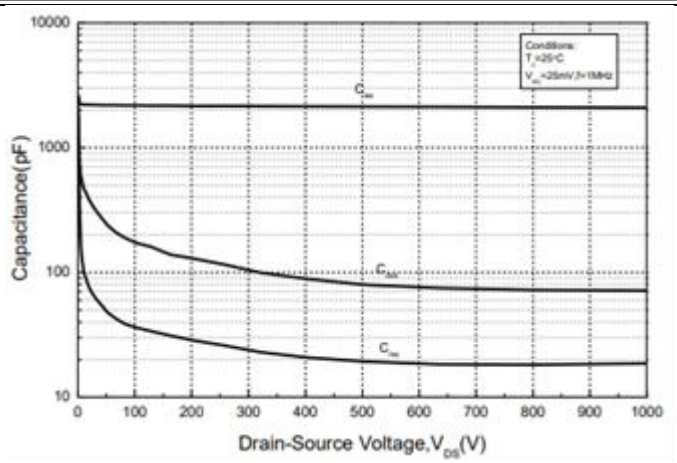
Transfer Characteristic



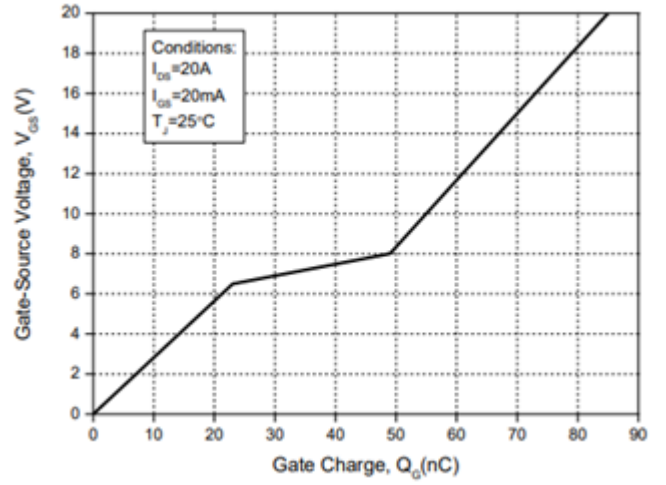
Threshold Voltage vs. Temperature or Various Junction Temperatures



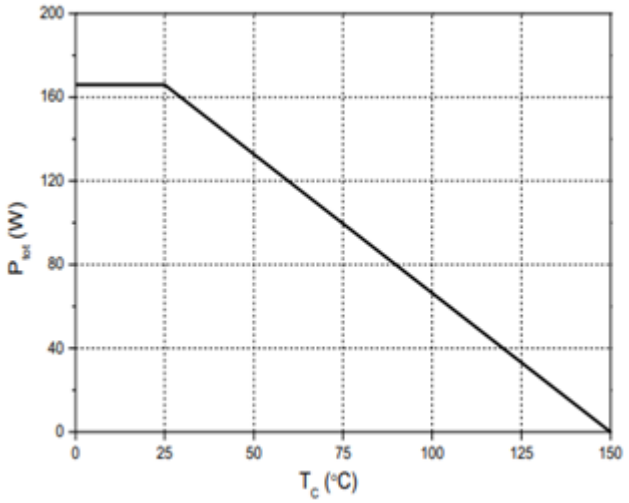
Body Diode Characteristics,T_J = 25 °C



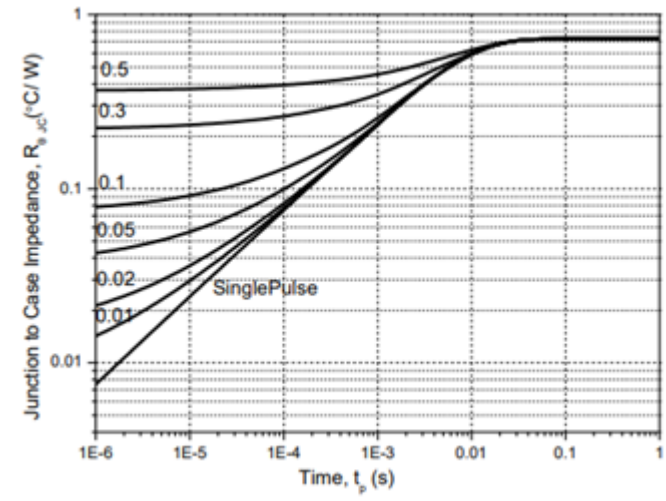
Capacitances vs. Drain-Source Voltage



Gate Charge Characteristics



Power Dissipation Derating

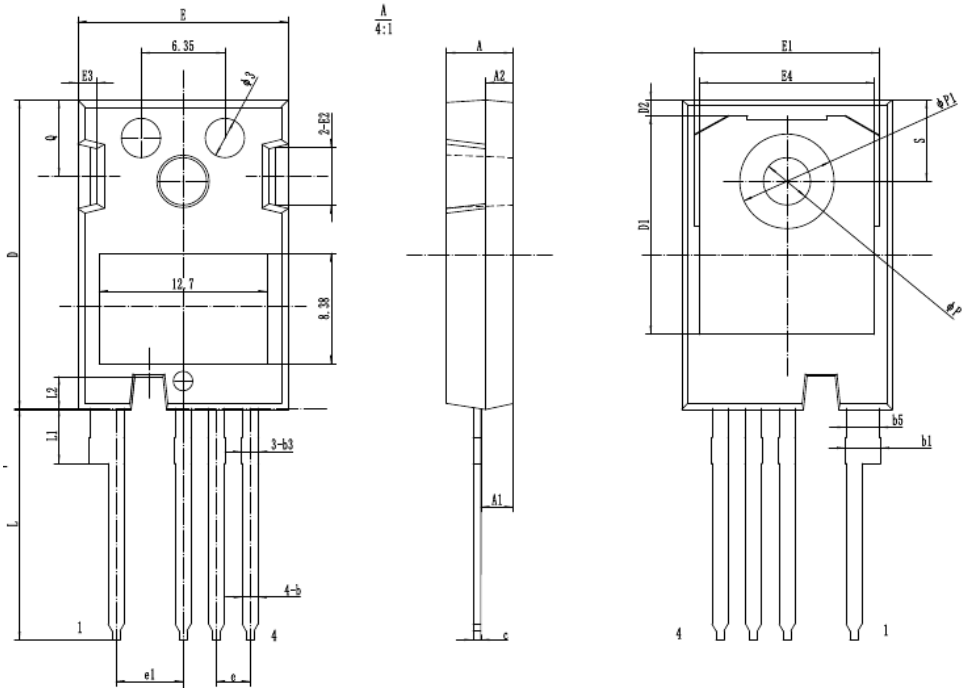


Transient Thermal Impendance

外形尺寸 PACKAGE MECHANICAL DATA

TO-247-4L

单位 Unit：mm

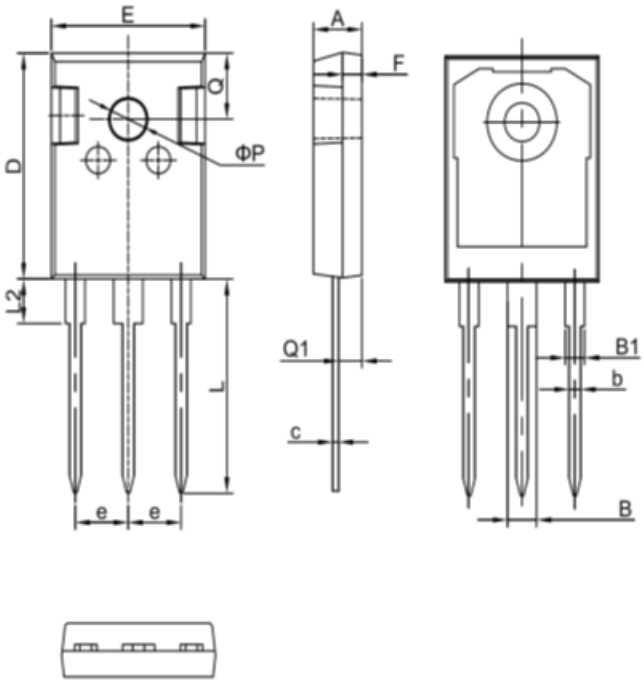


SYMBOL	mm		
	MIN	NOM	MAX
*A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.00	2.16
*b	1.07	1.20	1.33
b1	2.39	2.67	2.94
b3	1.07	1.30	1.60
b5	2.39	2.53	2.69
*c	0.55	0.60	0.68
*D	23.30	23.45	23.60
D1	16.25	16.55	17.65
D2	0.95	1.19	1.25
*E	15.75	15.94	16.13
E1	13.10	14.02	14.15
E2	3.68	4.40	5.10
E3	1.00	1.45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

吉林华微电子股份有限公司

公司地址：吉林省吉林市深圳街 99 号

邮编：132013

总机：86-432-64678411

传真：86-432-64665812

网址：www.hwdz.com.cn

CONTACT

JILIN SINO-MICROELECTRONICS CO., LTD.

ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.

Post Code: 132013

Tel： 86-432-64678411

Fax：86-432-64665812

Web Site：www.hwdz.com.cn