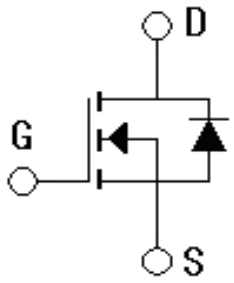
MG120R080

主要参数 MAIN CHARACTERISTICS

I_D	28A
V_{DSS}	1200V
Rdson-typ （@Vgs=20V）	80MΩ
Qg-typ	85nC

封装 **Package**



用途

- 光伏逆变器
- 开关模式电源
- 高压 DC/DC 转换器
- 电池充电器
- 电动驱动
- 脉冲电源应用

APPLICATIONS

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Battery Chargers
- Motor Drives
- Pulsed Power applications

产品特性

- 高阻断电压
- 低导通电阻
- 低电容高速开关
- 易于驱动
- 雪崩强度高
- RoHS 产品

FEATURES

- High Blocking Voltage
- Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness
- RoHS product

优点

- 高的系统效率
- 降低冷却要求
- 提高功率密度
- 高的开关频率

BENEFITS

- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

订货信息 ORDER MESSAGE

订 货 型 号 Order codes				印 记 Marking	封 装 Package
有卤-条管	无卤-条管	有卤-编带	无卤-编带		
Halogen-Tube	Halogen-Free-Tube	Halogen-reel	Halogen-Free-Reel		
N/A	MG120R080-GE-BR	N/A	N/A	MG120R080	TO-247

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	注释 Note
最高漏极一源极直流电压 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	Fig. 10
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	注释 Note
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℃	2	2.4	4	V	Fig. 6
		V_{DS} = V_{GS},I_D=5mA, T_C=150℃		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℃	-	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℃	-	80	98	mΩ	Fig. 4
		V_{GS} =20V , I_D=20A, T_C=150℃		120		mΩ	
跨导 Transconductance	g_{fs}	V_{DS} = 20V, I_D=20A, TJ = 25 ˚C	-	7	-	S	Fig. 5
		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	Fig.8
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	$t_{d(on)}$	V_{DD}=800V, V_{GS}=-5/20V I_D = 20A, $R_{G(ext)}$ = 5 Ω , R_L=40Ω, Timing relative to V_{DS}	-	23	-	ns	
上升时间 Turn-On rise time	t_r		-	60	-	ns	
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	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	Fig. 9
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	注释 Note
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	Fig. 7
		V_{GS} =-5V, I_{SD} = 10 A, T_J = 150 °C	3.3		V	
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	T_C=25℃	-	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	注释 Note
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	0.75	℃/W	Fig. 11
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	35	℃/W	

典型性能 Typical Performance

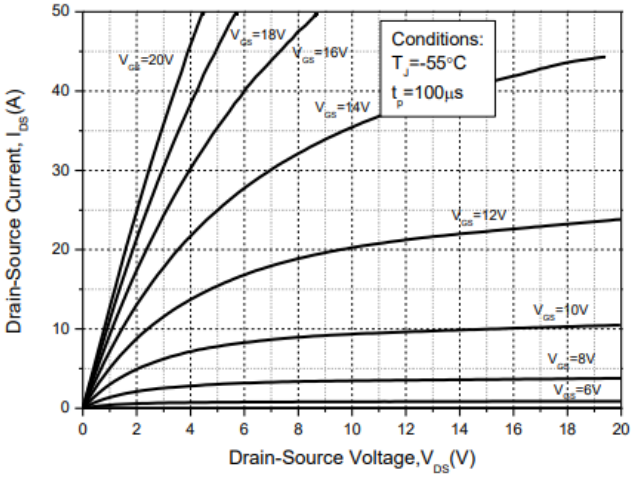


Figure 1.Output Characteristics T_J=-55℃

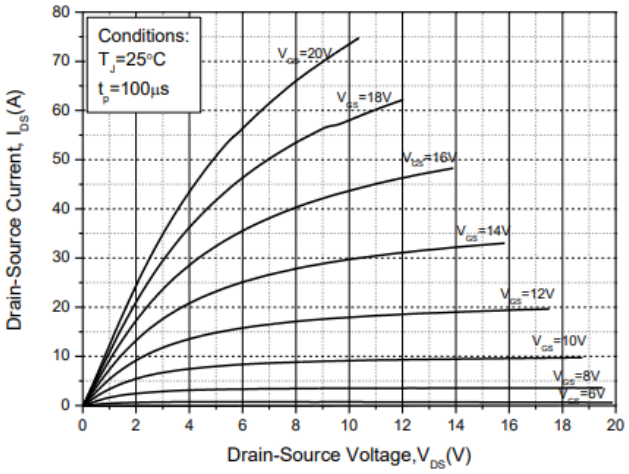


Figure 2.Output Characteristics T_J=25℃

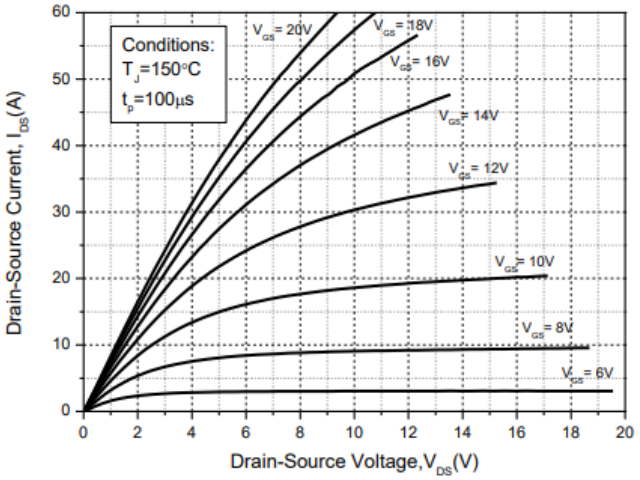


Figure 3.Output Characteristics T_J=150℃

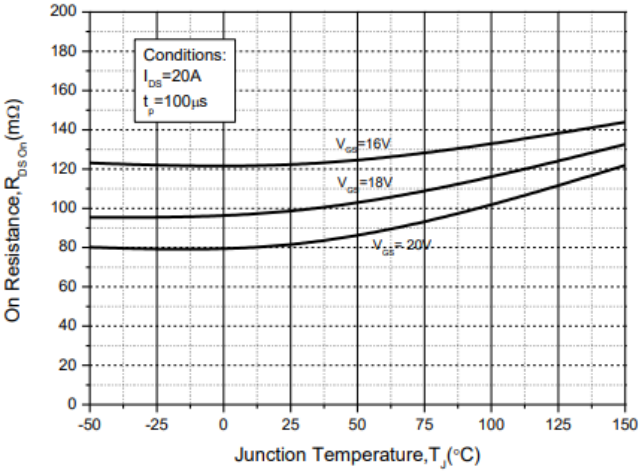


Figure 4.On-Resistance For Various Gate Voltage

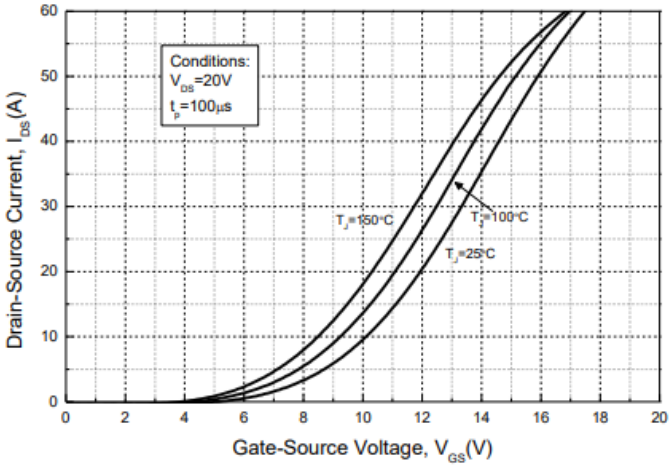


Figure 5.Transfer Characteristics

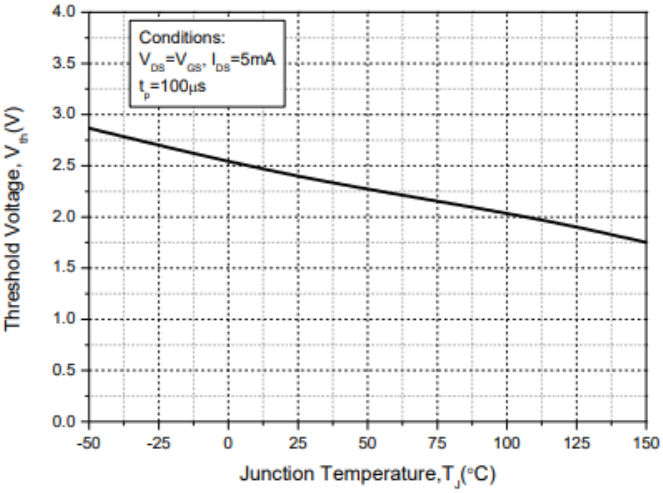


Figure 6. Threshold Voltage vs. Temperature forVarious Junction Temperatures

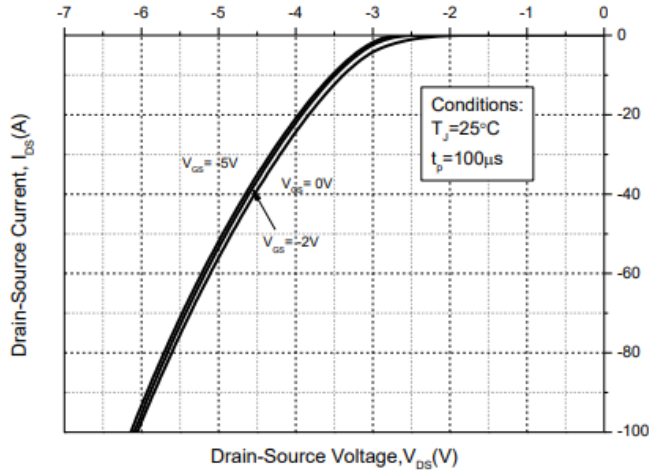


Figure 7.Body Diode Characteristics

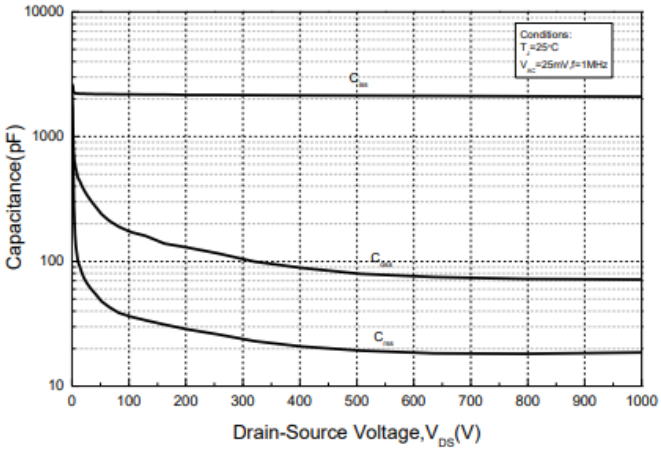


Figure 8. Capacitances vs. Drain-Source Voltage

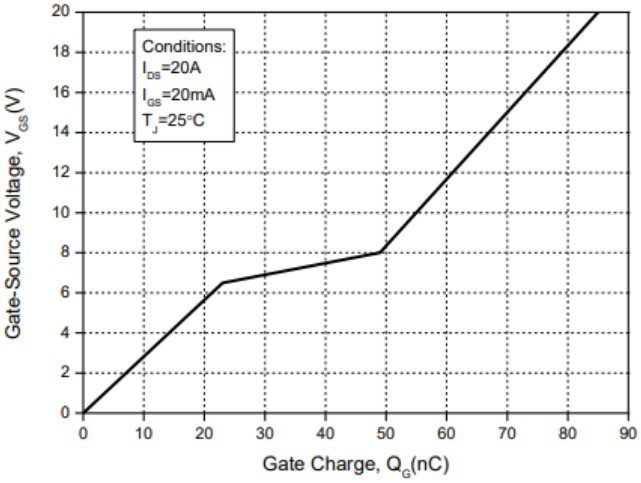


Figure 9.Gate Charge Characteristics

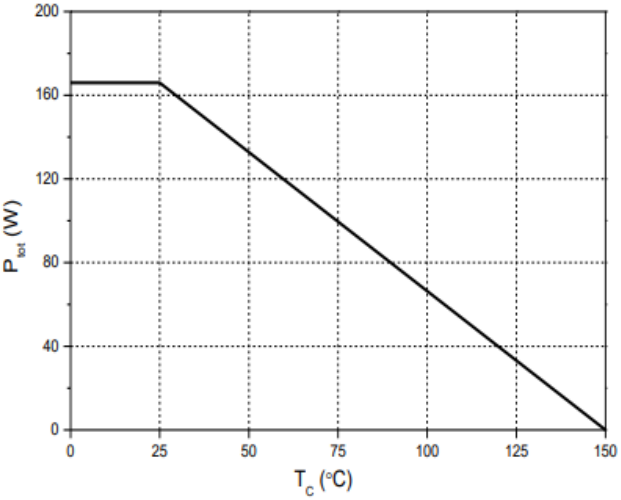


Figure 10. Power Dissipation Derating

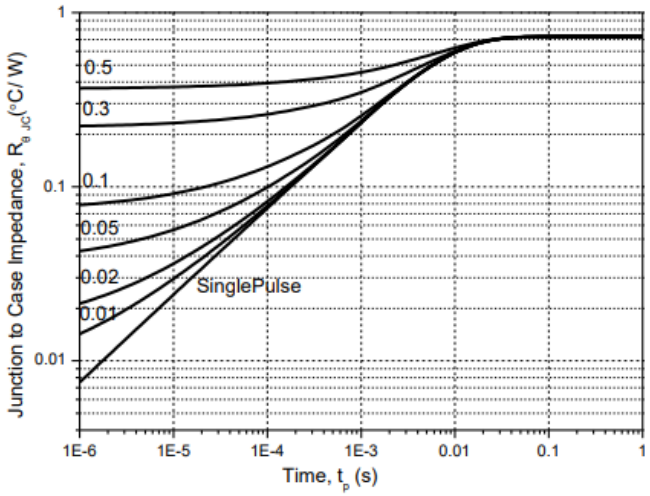
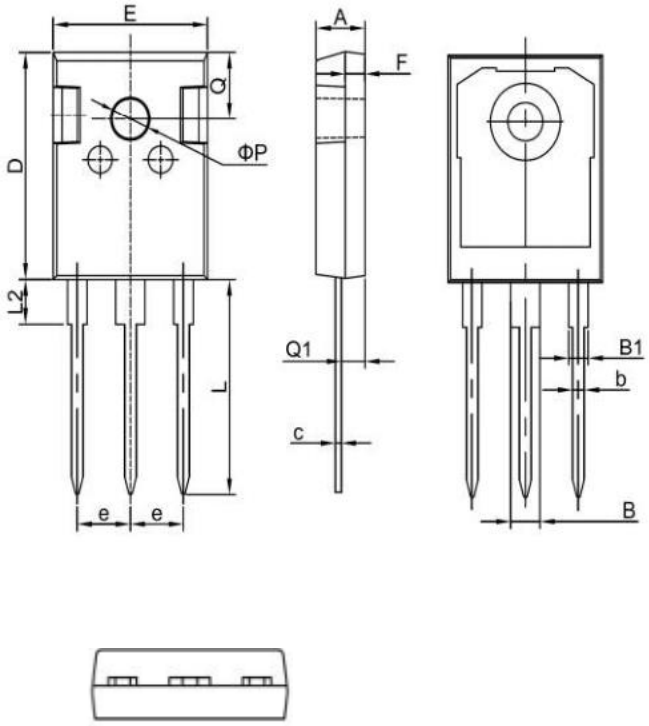


Figure 11. Transient Thermal Impendance

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

市场营销部
地址：吉林省吉林市深圳街 99 号

邮编：132013
电话： 86-432-64675588
64675688
64678411
传真: 86-432-64671533

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

MARKET DEPARTMENT
ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.
Post Code: 132013
Tel: 86-432-64675588
64675688
64678411
Fax: 86-432-64671533