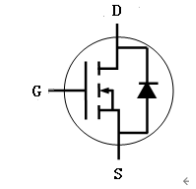
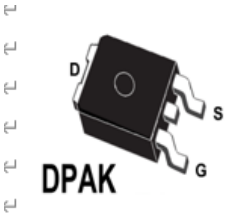
MG065R240B

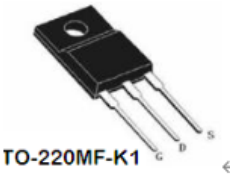
主要参数 MAIN CHARACTERISTICS

I_D	15.4A
V_{CE}	650V
Rdson-typ (@Vgs=15V)	215mΩ
Qg-typ	12.5nC

封装 Package







用途 APPLICATIONS

- ●LED 驱动 ●LED driver
- ●PD 快充 ●PD charger
- ●电源适配器 ●PC adapte
- ●空调系统 ●Air-conditioning
- ●电动自行车充电器 ●E-bike charger

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
- ●RoHS 产品 ●RoHS product

订货信息 ORDER MESSAGE

订货型号 Order codes				印记 Marking	封装 Package
有卤-条管 Halogen-Tube	无卤-条管 Halogen-Free-Tube	有卤-编带 Halogen-Reel	无卤-编带 Halogen-Free-Reel		
N/A	MG065R240B-R-BR	N/A	MG065R240B-R-AR	MG065R240B	DPAK
N/A	MG065R240B-F1-BR	N/A	N/A	MG065R240B	TO-220MF-K1

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}	650	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}	0/+15	V	Recommended operational values
连续漏极电流 Drain Current -continuous	I_D	15.4	A	T_C=25˚C
		10.9	A	T_C=100˚C
最大脉冲漏极电流 Drain Current - pulse	I_{DM}	24.5	A	Pulse width t_p limited by T_{jmax}
耗散功率 Power Dissipation	P_D	65.5	W	T_C=25˚C
单脉冲雪崩能量 Single Pulsed Avalanche Energy	E_{AS}	23	mJ	L=0.5mH，I_{AS}= 10A， V_{DD}=50V，V_{GS}=15 V
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－源击穿电压 Drain-Source Voltage	BV_{DSS}	I_D=100μA, V_{GS}=0V	650	-	-	V
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS},I_D=3.5mA, T_C=25℃	2.7	3.4	4.1	V
		V_{DS} = V_{GS},I_D=3.5mA, T_C=175℃	-	2.4	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V,V_{GS}=0V,T_C=25℃ V_{DS}=650V,V_{GS}=0V, T_C=175℃	- -	0.1 1	20 -	μA
栅极体漏电流 Gate-body leakage current	I_{GSS}	V_{DS}=0V, V_{GS} =22V ,T_C=25℃ V_{DS}=0V, V_{GS} =-10V ,T_C=25℃	-	1	250	nA
导通电阻 Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =15V , I_D=8A, T_C=25℃	-	215	280	mΩ
		V_{GS} =15V , I_D=8A, T_C=175℃	-	229	-	mΩ
跨导 Transconductance	g_{fs}	V_{DS} = 20V, I_D=5A, T_J = 25℃	-	5.7	-	S
输入电容 Input capacitance	C_{iss}	V_{DS}=650V, V_{GS} =0V, f=1MHz	-	289	-	pF
输出电容 Output capacitance	C_{oss}		-	23	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	2.1	-	pF
导通开关能量 Turn-OnSwitching Energy	E_{ON}	V_{DD}=400V, V_{GS}=0/15V,I_D=8A, $R_{G(on)}$ = 4.3Ω, L= 600μH	-	79.2	-	μJ
关断开关能量 Turn-OffSwitching Energy	E_{OFF}		-	13.3	-	
总开关能量 Total Switching Energy	Etot		-	92.5	-	
延迟时间 Turn-On delay time	td(on)	V_{DD}=400V, V_{GS}=0/15V,I_D= 8A, $R_{G(ext)}$ = 4.3Ω, L= 600μH	-	20.4	-	ns
上升时间 Turn-On rise time	tr		-	11.9	-	ns
延迟时间 Turn-Off delay time	td(off)		-	17.2	-	ns
下降时间 Turn-Off Fall time	t_f		-	11.7	-	ns
栅电阻 Intrinsic gate resistance	R_G	f = 1 MHz , V_{AC}=25mV	-	23	-	Ω
栅－源电荷 Gate-Source charge	Q_{gs}	V_{DD}=400V, V_{GS}=0/15V, I_D =8A	-	4.5	-	nC
栅－漏电荷 Gate-Drain charge	Q_{gd}		-	1.5	-	

栅极电荷总量 Total Gate Charge	Q_g		-	12.5	-	

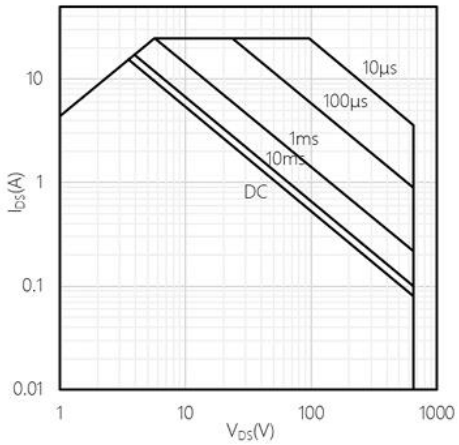
漏－源二极管特性 Drain-Source Diode Characteristics

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} =0V, I_{SD} = 4A, T_J = 25 °C	3.6	-	V
		V_{GS} =0V, I_{SD} =4A, T_J = 175 °C	3.2	-	V
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	T_C=25℃ T_C=100℃	- -	13.5 5.9	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	T_C=25℃	-	23	A
反向恢复时间 Reverse recovery time	t_{rr}	V_{GS} =0V, I_{SD} =8A, dif/dt=1.6kA/μs, V_{DS}=400V　T_J = 25 °C	12.1	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		35.8	-	nC
峰值反向恢复电流 Peak Reverse Recovery Current	Irrm		5.3	-	A
反向恢复能量 Reverse Recovery Energy	Err		0.33	-	μJ

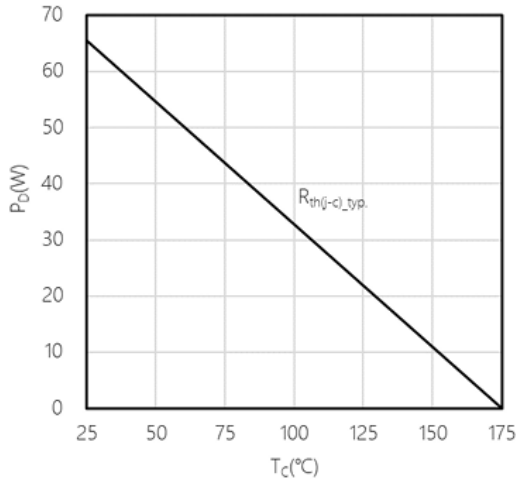
热特性 THERMAL CHARACTERISTIC

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)	2.29	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	40	℃/W

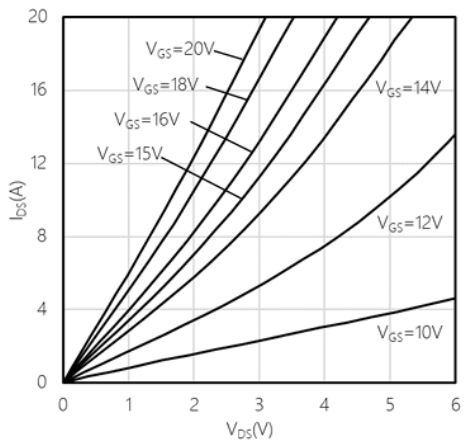
典型性能 Typical Performance



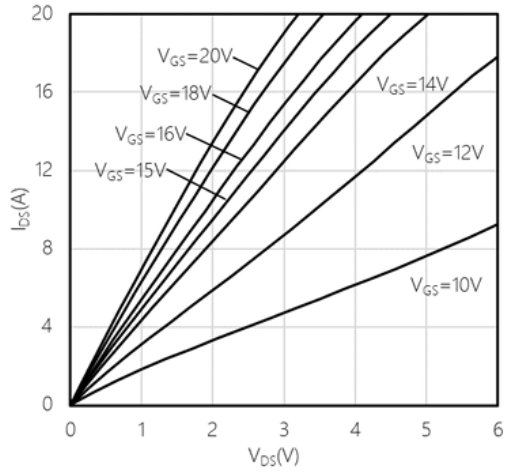
Safe operating area (SOA)



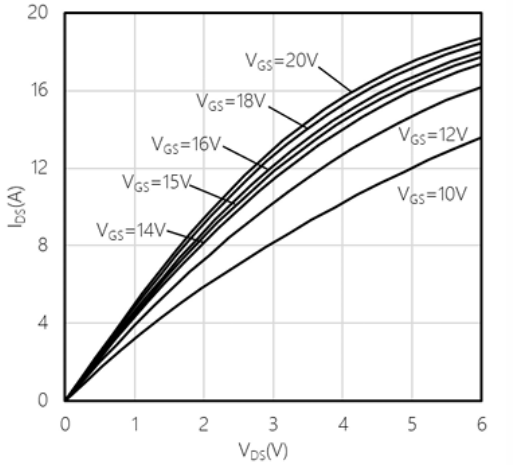
Power Derating



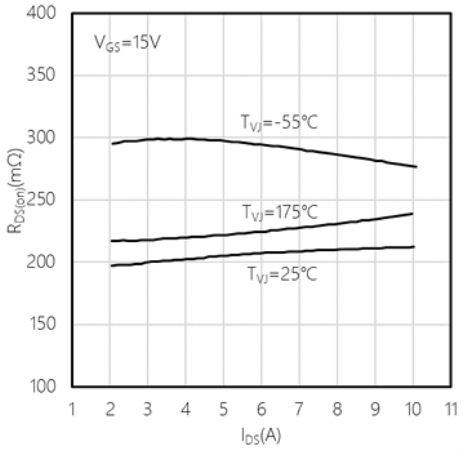
Typical output characteristic, V_{GS} as parameter
T_{VJ} = -55 ℃



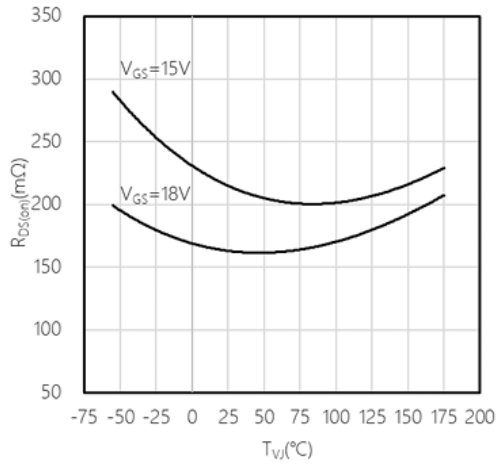
Typical output characteristic, V_{GS} as parameter
T_{VJ} = 25 ℃



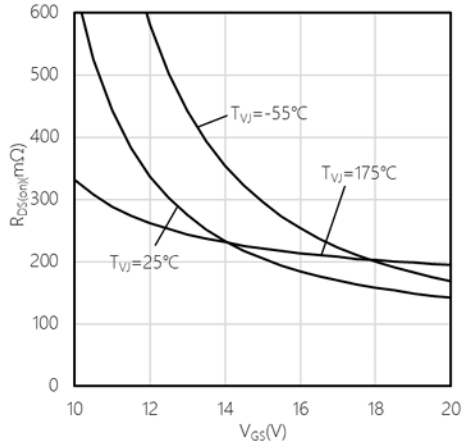
Typical output characteristic, V_{GS} as parameter
T_{VJ} = 175 ℃



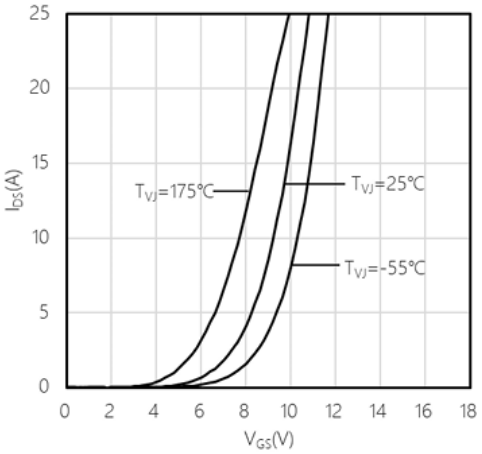
Typical on-state resistance as a function of drain current



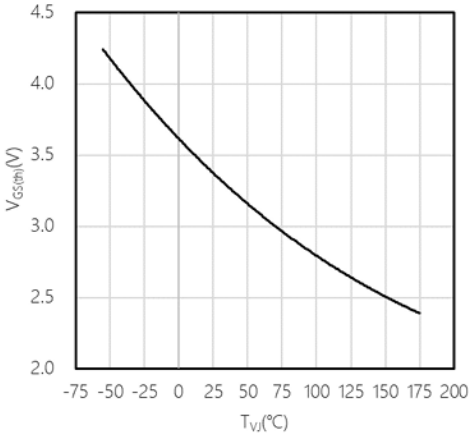
Typical on-state resistance as a function of temperature



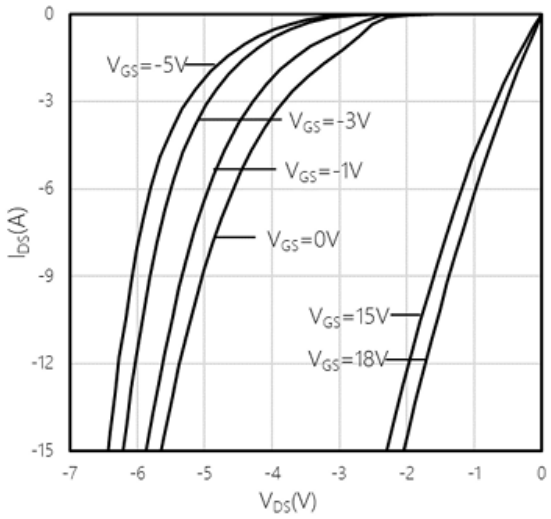
Typical on-state resistance as a function of V_{GS}



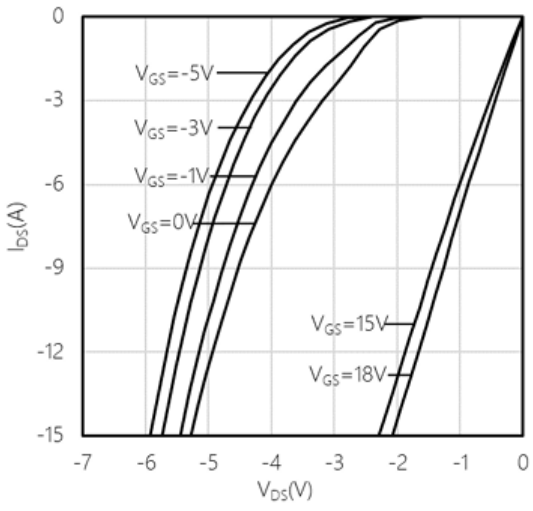
Typical transfer characteristic



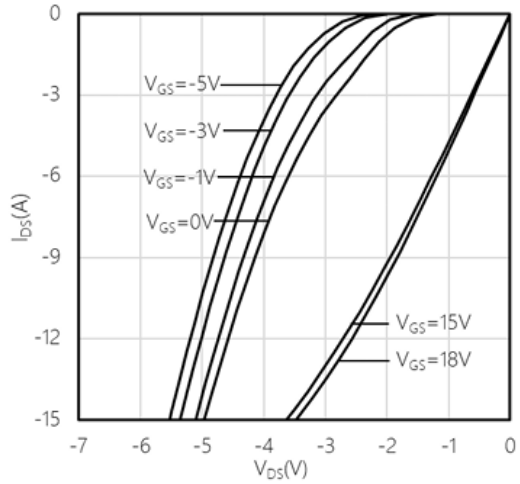
Typical gate-source threshold voltage as a function of junction temperature



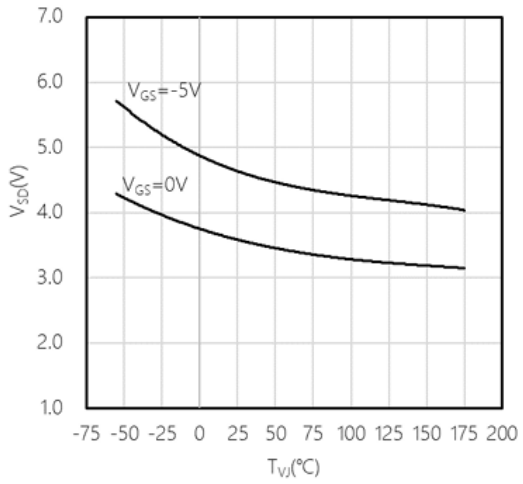
Typical reverse drain current as function of reverse drain voltage, VGS as parameter $I_{DS} = f_{(VDS)}$, T_{VJ} = -55 °C



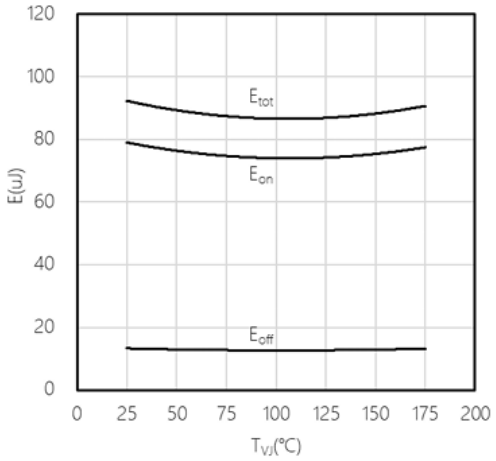
Typical reverse drain current as function of reverse drain voltage, VGS as parameter $I_{DS} = f_{(VDS)}$, T_{VJ} = 25 °C



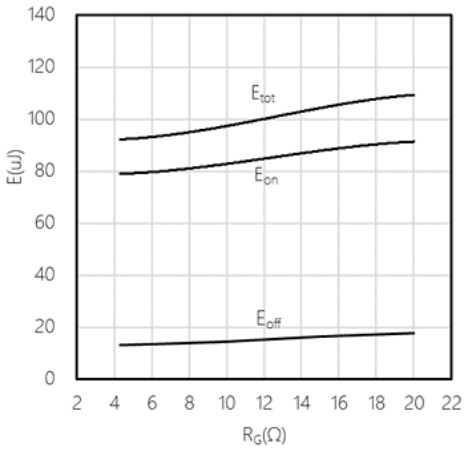
Typical reverse drain current as function of reverse drain voltage, VGS as parameter $I_{DS} = f_{(VDS)}$, T_{VJ} = 175 °C



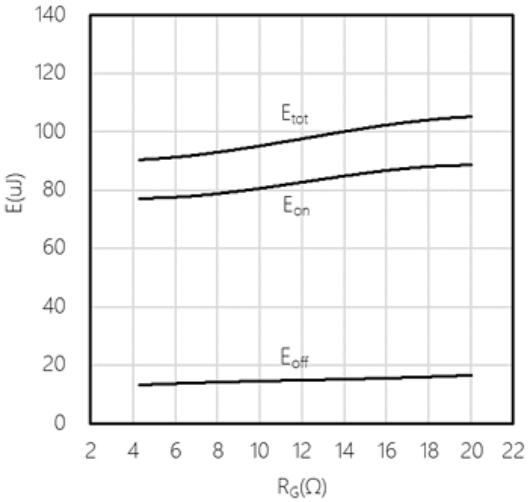
Typical reverse drain voltage as function of junction temperature $V_{SD} = f_{(TVJ)}$, I_{SD} = 2 A



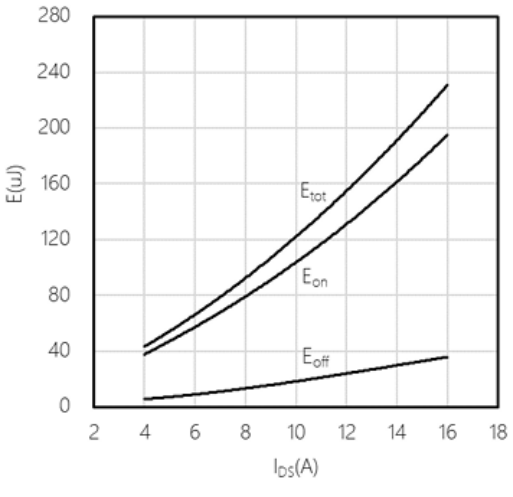
Typical switching energy as a function of junction temperature, 2nd device own body diode



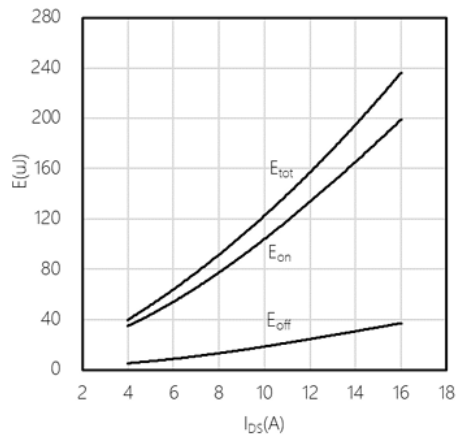
Typical switching energy losses as a function of gate resistance, 2nd device own body diode T_{VJ} = 25 °C



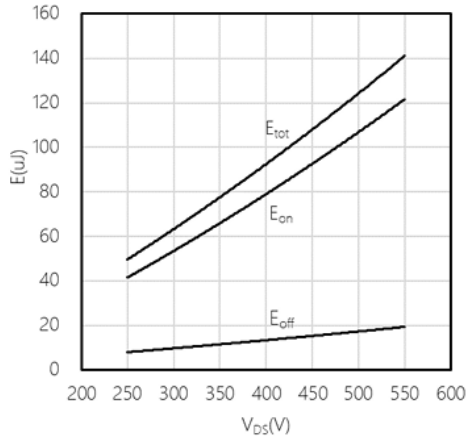
Typical switching energy losses as a function of gate resistance, 2nd device own body diode T_{VJ} = 175 °C



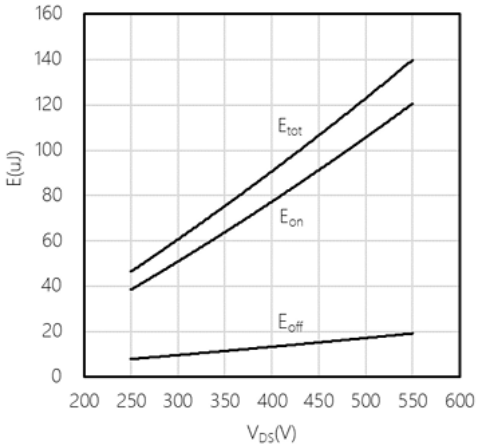
Typical switching energy losses as a function of I_{DS}, 2nd device own body diode T_{VJ} = 25 °C



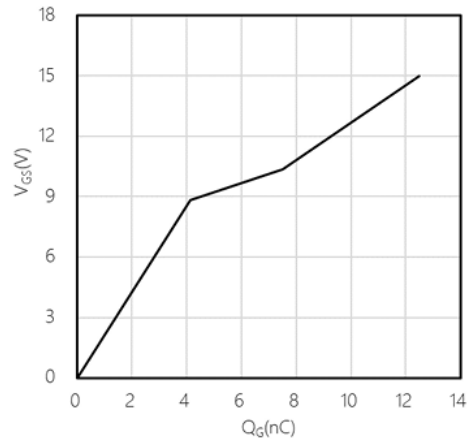
Typical switching energy losses as a function of I_{DS}, 2nd device own body diode T_{VJ} = 175 °C



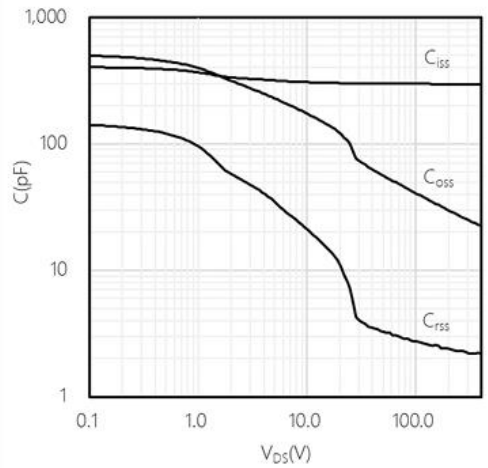
Typical switching energy losses as a function of V_{DS}, 2nd device own body diode T_{VJ} = 25 °C



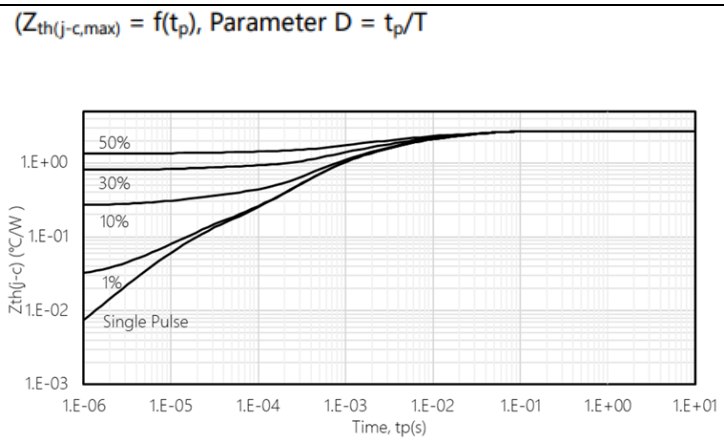
Typical switching energy losses as a function of V_{DS}, 2nd device own body diode T_{VJ} = 25 °C



Typical gate charge



Typical capacitance as a function of drain-source voltage

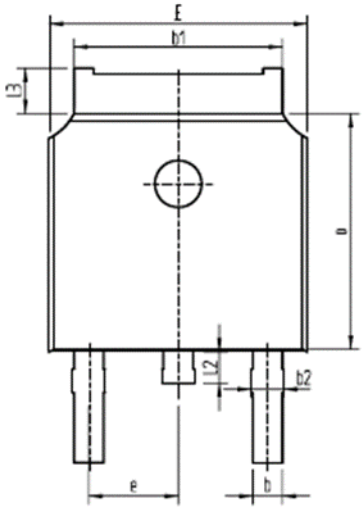


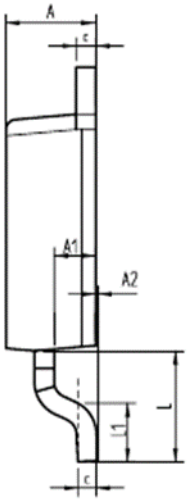
Transient thermal resistance (MOSFET)

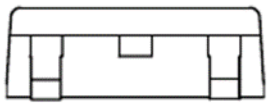
外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit：mm





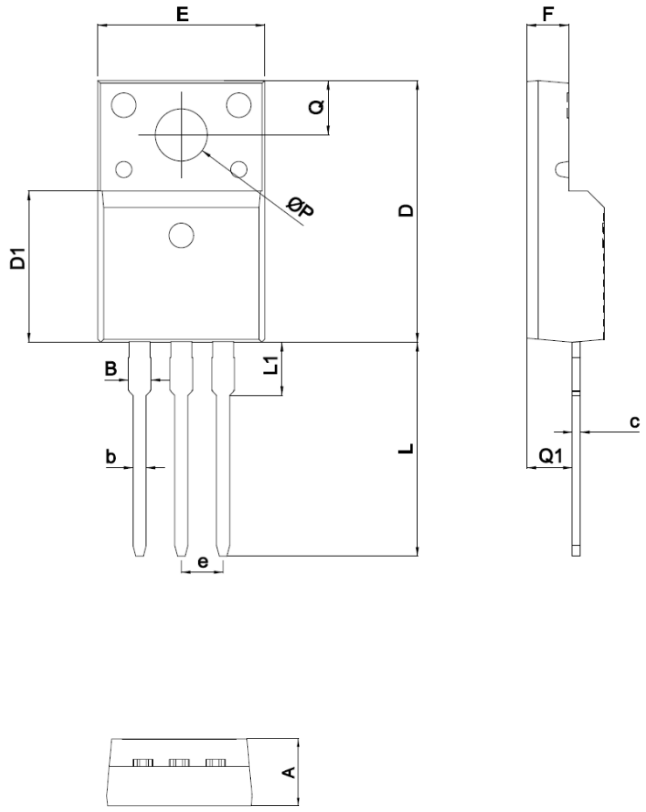


SYMBOL	mm	
	MIN	MAX
A	2.16	2.41
A1	0.97	1.17
A2	0.00	0.15
b	0.63	0.93
b1	5.13	5.53
b2	0.66	0.96
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.60	1.00
L3	0.85	1.30

外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

单位 Unit：mm



SYMBOL	mm	
	MIN	MAX
A	4.5	4.9
B	1.22	1.47
b	0.7	0.9
c	0.45	0.60
D	15.6	16.1
D1	9.0	9.3
e	2.54TYPE	
E	9.9	10.4
F	2.3	2.8
L	12.6	13.3
L1	3.1	3.4
Q	3.2	3.4
Q1	2.6	2.9
ΦP	3.0	3.5

注意事项

1. 吉林华微电子股份有限公司的产品销售分为直销和销售代理，无论哪种方式，订货时请与公司核实。
2. 购买时请认清公司商标，如有疑问请与公司本部联系。
3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
4. 本说明书如有版本变更不另外告知。

NOTE

1. Jilin Sino-microelectronics co., Ltd sales its product either through direct sales or sales agent , thus, for customers, when ordering , please check with our company.
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.
4. Jilin Sino-microelectronics co., Ltd reserves the right to make changes in this. specification sheet and is subject to change without prior notice.

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