



MG075R040B

主要参数 MAIN CHARACTERISTICS

ID	68A
V_{DS}	750V
$R_{dson-typ}$ (@ $V_{GS}=18V$)	39m Ω
Q_g-typ	67nC

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
- 脉冲电源应用

APPLICATIONS

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

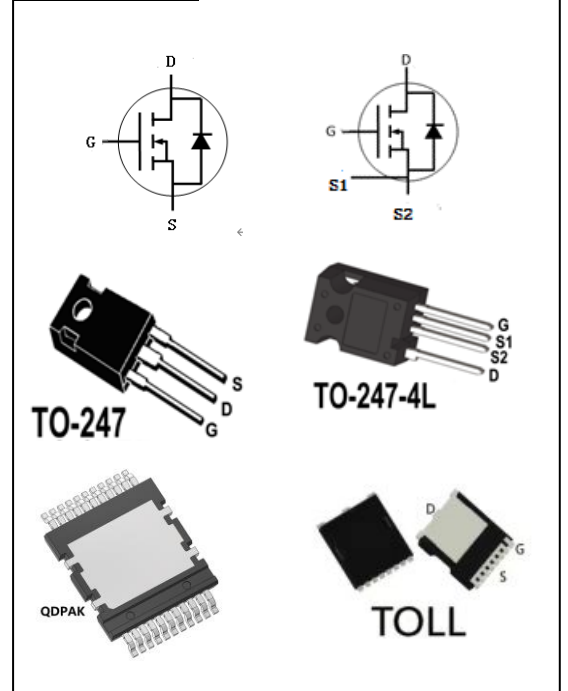
产品特性

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

FEATURES

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

封装 Package



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	MG075R040B-GH-BR	N/A	N/A	MG075R040B	TO-247-4L
N/A	MG075R040B-GE-BR	N/A	N/A	MG075R040B	TO-247
N/A	MG075R040B-GQ-BR	N/A	N/A	MG075R040B	TO-247A
N/A	MG075R040B-RB-BR	N/A	N/A	MG075R040B	QDPAK
N/A	MG075R040B-RB-BR	N/A	N/A	MG075R040B	TOLL



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	测试条件 Tests conditions
最高漏极-源极直流电压 Drain-Source Voltage	V_{DSmax}	750	V	$V_{GS}=0V, I_D=100\mu A$
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	68	A	$V_{GS}=18V, T_c=25^{\circ}\text{C}$
		48	A	$V_{GS}=18V, T_c=100^{\circ}\text{C}$
最大脉冲漏极电流 Drain Current - pulse	I_{DM}	131	A	Pulse width t_p limited by T_{jmax}
耗散功率 Power Dissipation	P_D	259	W	$T_c=25^{\circ}\text{C}$
单脉冲雪崩能量 Single Pulsed Avalanche Energy	E_{AS}	196	mJ	$L=0.5mH, I_{AS}=28A, V_{DD}=50V, V_{GS}=18V$
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	-55~+175	$^{\circ}\text{C}$	
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	260	$^{\circ}\text{C}$	





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}	$I_D=100\mu A$, $V_{GS}=0V$	750	—	—	V
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D=5.6mA$, $T_c=25^\circ C$	2.7	3.3	4.1	V
		$V_{DS} = V_{GS}$, $I_D=5.6mA$, $T_c=175^\circ C$	—	2.3	—	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=750V$, $V_{GS}=0V$, $T_c=25^\circ C$	—	1	20	μA
栅极体漏电流 Gate-body leakage current	I_{GSS}	$V_{DS}=0V$, $V_{GS}=22V$	—	1	250	nA
导通电阻 Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=18V$, $I_D=18.8A$, $T_c=25^\circ C$	—	39	51	m Ω
		$V_{GS}=18V$, $I_D=18.8A$, $T_c=175^\circ C$	—	50	—	m Ω
		$V_{GS}=20V$, $I_D=18.8A$, $T_c=25^\circ C$	—	35	44	m Ω
跨导 Transconductance	g_{fs}	$V_{DS}=20V$, $I_D=18.8A$, $T_J=25^\circ C$	—	11.8	—	S
输入电容 Input capacitance	C_{iss}	$V_{DS}=500V$, $V_{GS}=0V$, $f=1MHz$	—	1531	—	pF
输出电容 Output capacitance	C_{oss}		—	127	—	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		—	7	—	pF
导通开关能量 Turn-On Switching Energy	E_{ON}	$V_{DS}=500V$, $V_{GS}=-5/18V$, $I_D=18.8A$, $R_{G(ext)}=9.1\Omega$, $L=100\mu H$	—	156	—	μJ
关断开关能量 Turn-Off Switching Energy	E_{OFF}		—	20.4	—	
延迟时间 Turn-On delay time	$t_d(on)$	$V_{DS}=500V$, $V_{GS}=-5/18V$, $I_D=18.8A$, $R_{G(ext)}=9.1\Omega$, $L=100\mu H$	—	7.0	—	ns
上升时间 Turn-On rise time	t_r		—	16.3	—	ns
延迟时间 Turn-Off delay time	$t_d(off)$		—	26.3	—	ns
下降时间 Turn-Off Fall time	t_f		—	10.7	—	ns
栅电阻 Intrinsic gate resistance	R_G	$f=1MHz$, $V_{AC}=25mV$	—	1.5	—	Ω
栅—源电荷 Gate-Source charge	Q_{gs}	$V_{DD}=500V$, $V_{GS}=-5/18V$, $I_D=18.8A$	—	24	—	nC
栅—漏电荷 Gate-Drain charge	Q_{gd}		—	6	—	
栅极电荷总量 Total Gate Charge	Q_g		—	67	—	





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}	$V_{GS} = -5V, I_{SD} = 9.5 A, T_J = 25^\circ C$	3.8	—	V
		$V_{GS} = -5V, I_{SD} = 9.5 A, T_J = 175^\circ C$	3.2	—	V
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	$T_C = 25^\circ C$	—	48	A
反向恢复时间 Reverse recovery time	t_{rr}	$V_{GS} = -5V, I_{SD} = 18.8 A, V_R = 500V,$ $dif/dt = 2000A/\mu s$	16	—	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		161	—	nC
峰值反向恢复电流 Peak Reverse Recovery Current	I_{rrm}		19	—	A
反向恢复能量 Reverse Recovery Energy	E_{rr}		10	—	μJ

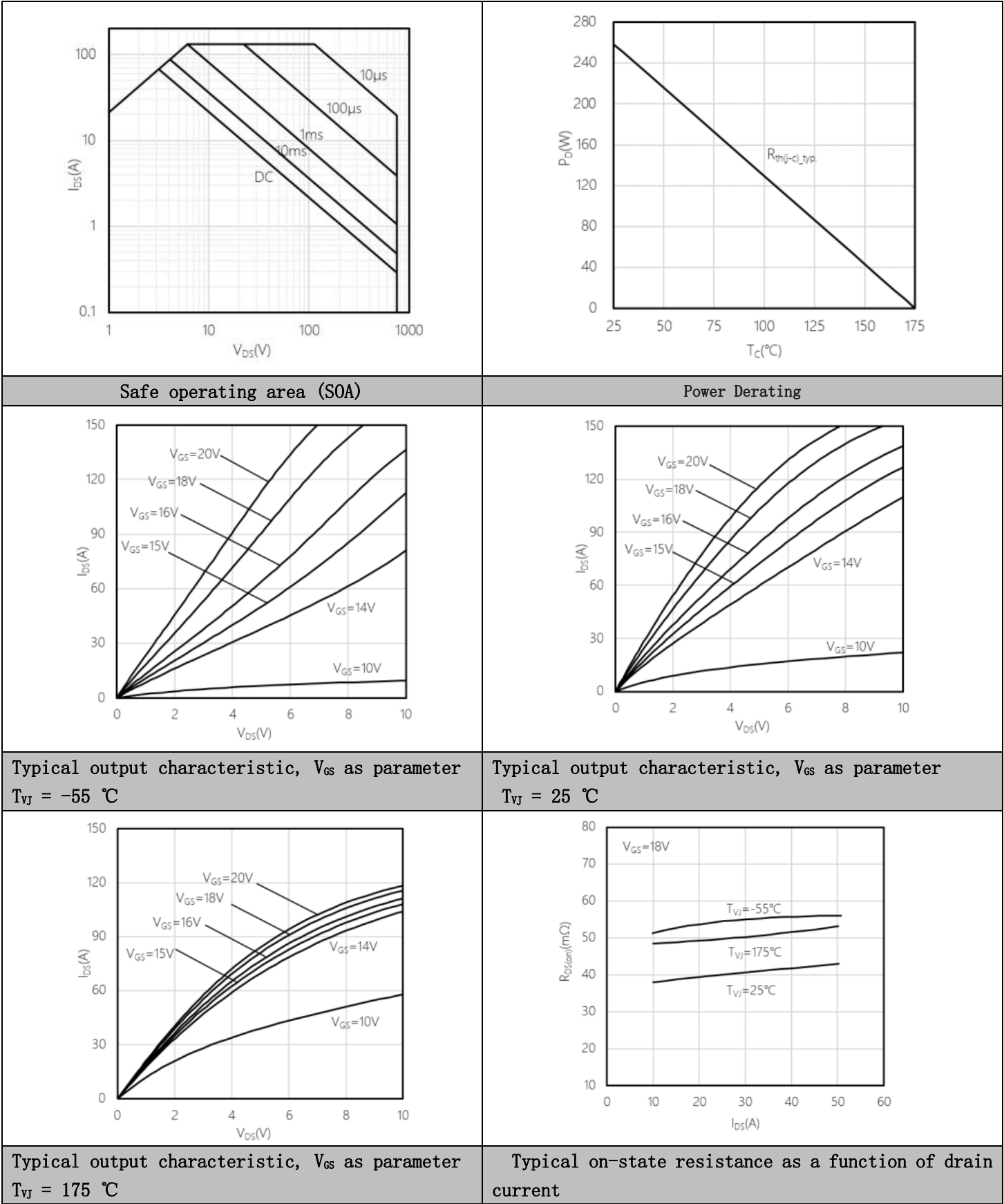
热特性 THERMAL CHARACTERISTIC

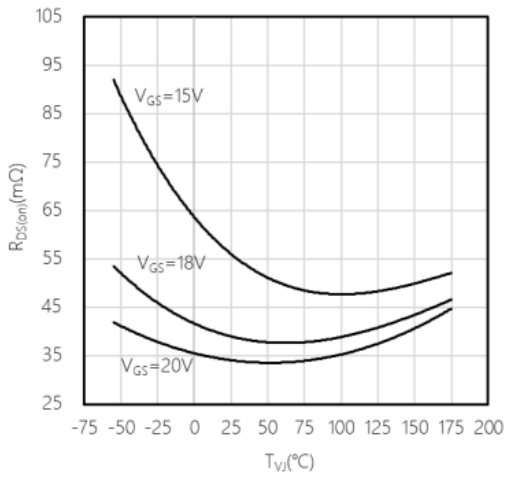
项 目 Parameter	符 号 Symbol	典型值 Typ			单 位 Unit
		T0-247 T0-247-4L	QDPAK	TOLL	
结到管壳的热阻 Thermal Resistance Junction to Case	$R_{th(j-c)}$	1.09	TBD	TBD	$^\circ C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-a)}$	40			$^\circ C/W$



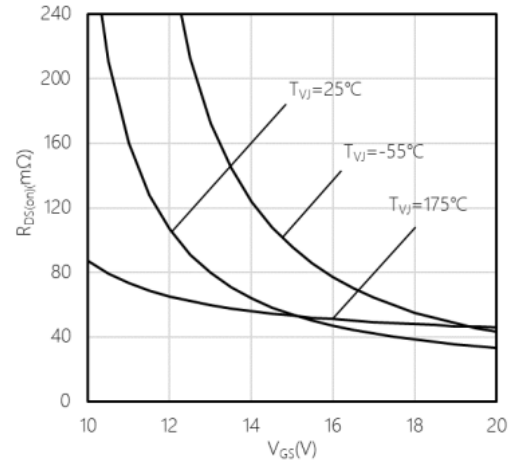


典型性能 Typical Performance

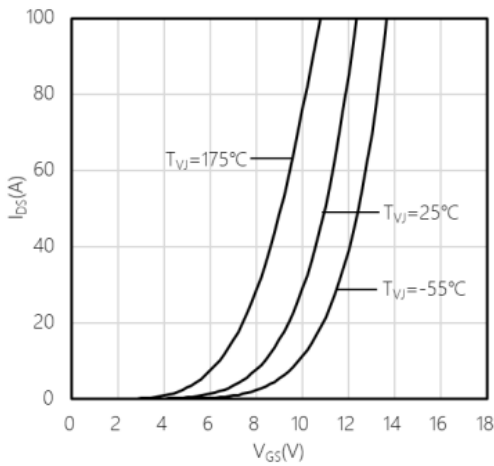




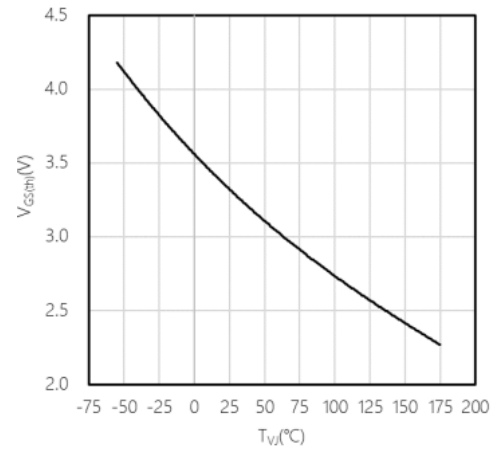
Typical on-state resistance as a function of temperature



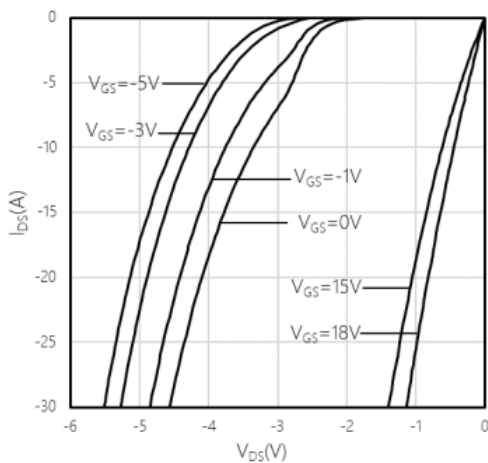
Typical on-state resistance as a function of V_{GS}



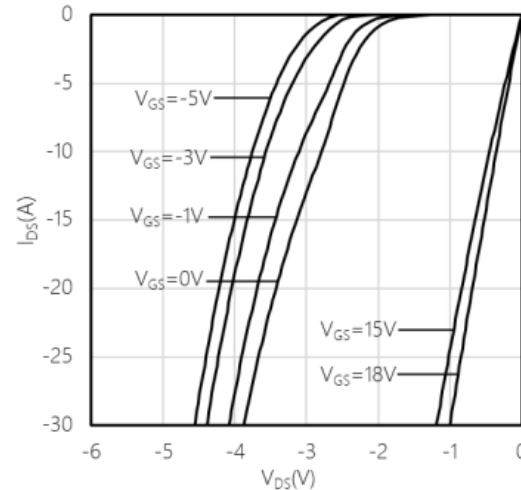
Typical transfer characteristic



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

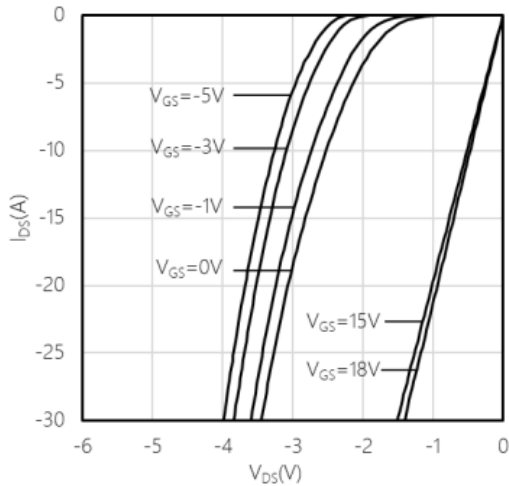


Typical reverse drain current as function of reverse drain voltage, V_{GS} as parameter $I_{DS} = f(V_{DS})$, $T_{J} = -55^{\circ}\text{C}$

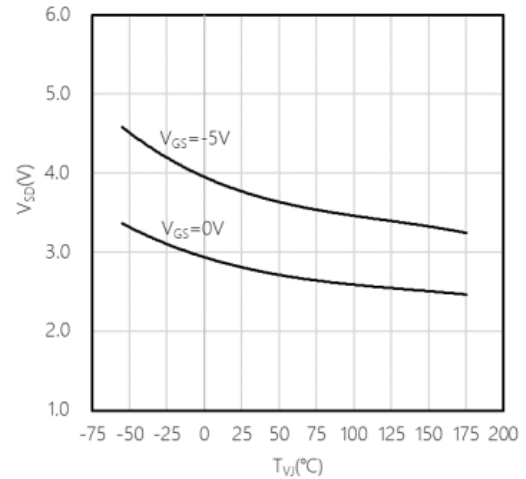


Typical reverse drain current as function of reverse drain voltage, V_{GS} as parameter $I_{DS} = f(V_{DS})$, $T_{J} = 25^{\circ}\text{C}$

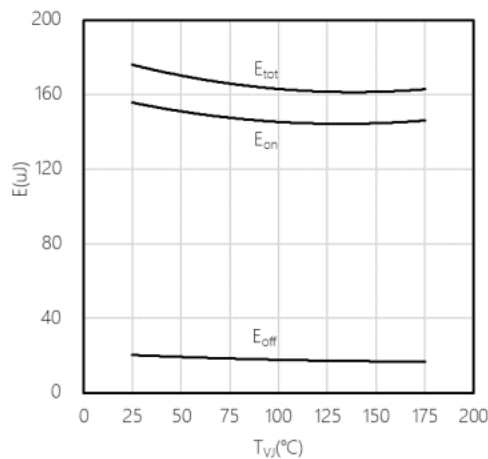




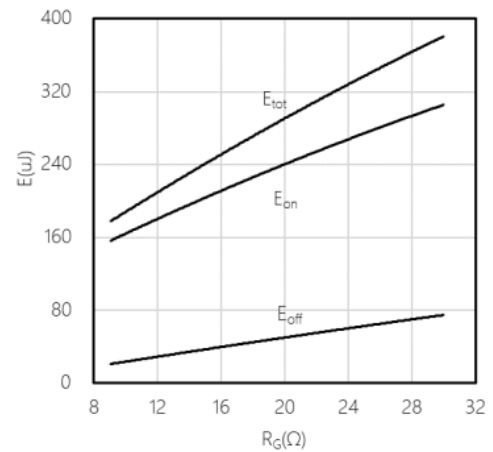
Typical reverse drain current as function of reverse drain voltage, V_{GS} as parameter $I_{DS} = f(V_{DS})$, $T_{VJ} = 175^\circ\text{C}$



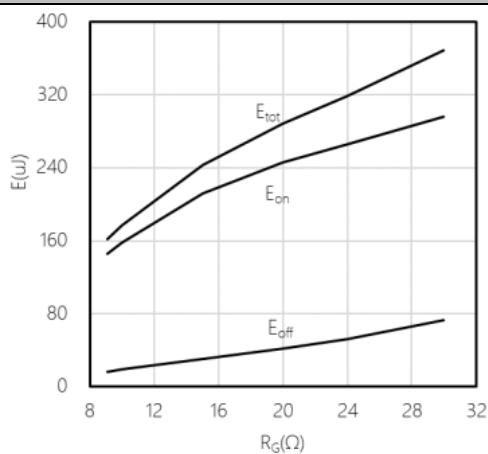
Typical reverse drain voltage as function of junction temperature $V_{SD} = f(T_{VJ})$, $I_{SD} = 2\text{ A}$



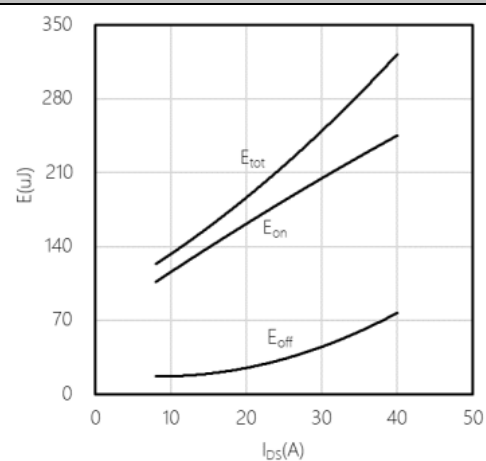
Typical switching energy as a function of junction temperature, 2nd device own body diode



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

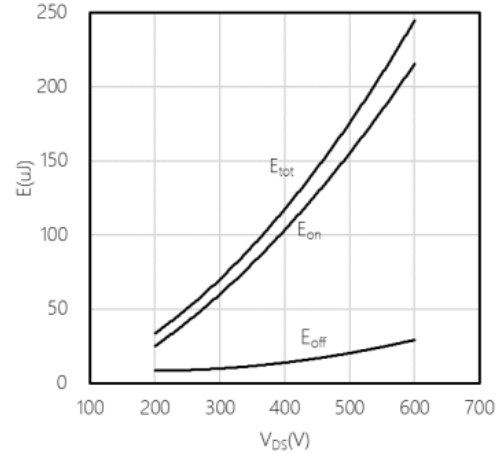
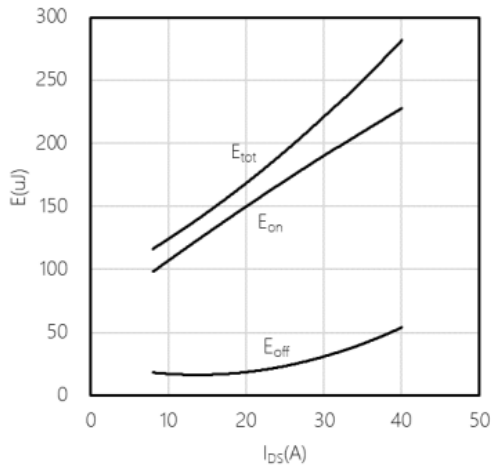


Typical switching energy losses as a function of gate resistance, 2nd device own body diode $T_{VJ} = 175^\circ\text{C}$



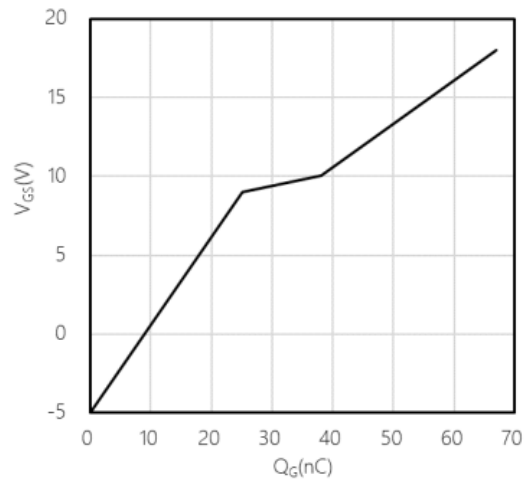
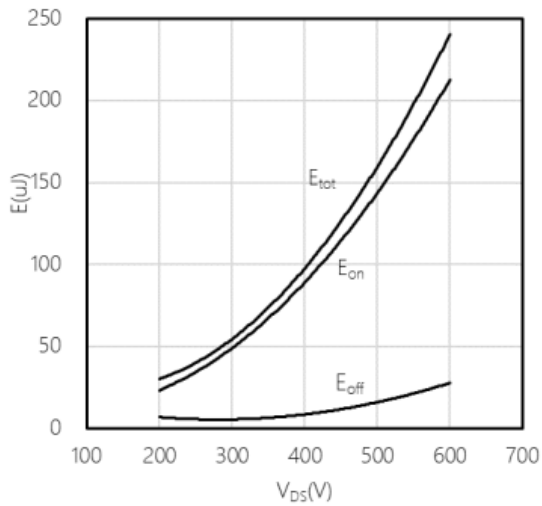
Typical switching energy losses as a function of I_{DS} , 2nd device own body diode $T_{VJ} = 25^\circ\text{C}$





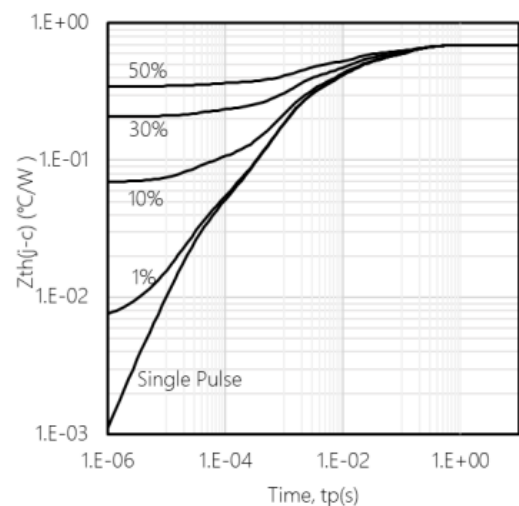
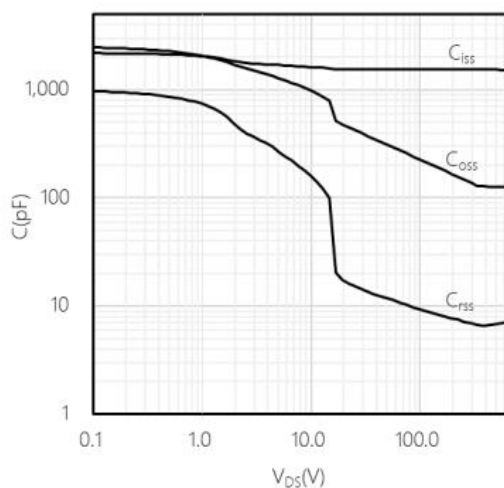
Typical switching energy losses as a function of I_{DS} , 2nd device own body diode $T_{VJ} = 175\text{ }^{\circ}\text{C}$

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



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

Typical gate charge



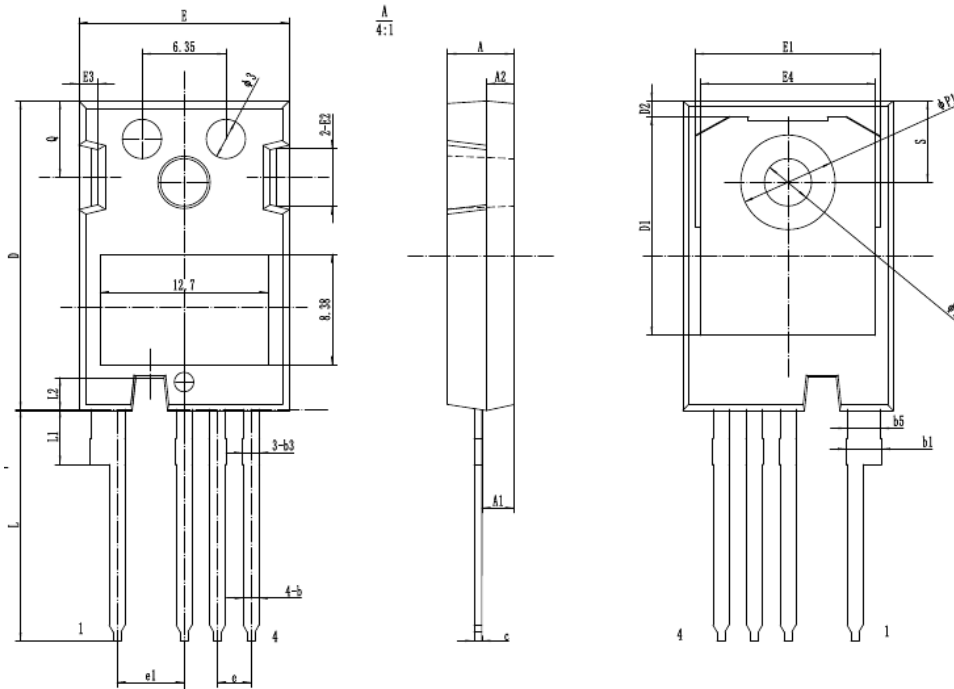
Typical capacitance as a function of drain-source voltage

Transient thermal resistance (MOSFET)



T0-247-4L

单位 Unit: mm



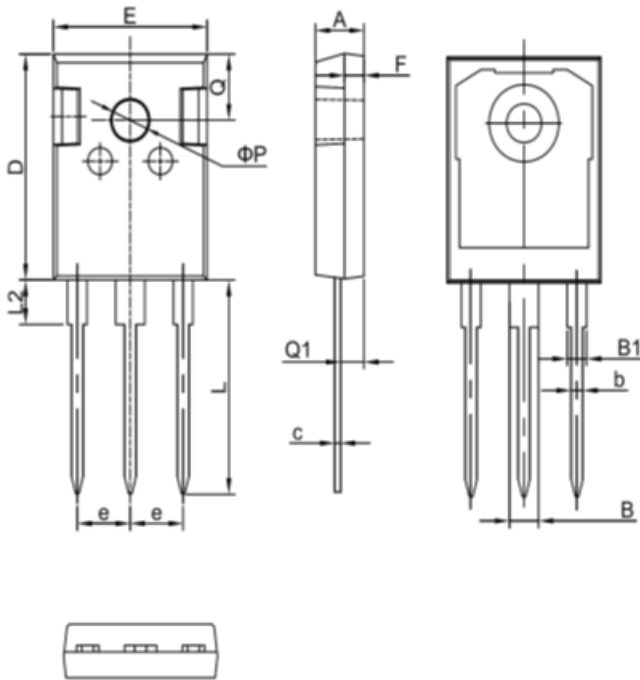
SYMBOL	mm		
	MIN	NOM	MAX
*A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.00	2.16
*b	1.07	1.20	1.33
b1	2.39	2.67	2.94
b3	1.07	1.30	1.60
b5	2.39	2.53	2.69
*c	0.55	0.60	0.68
*D	23.30	23.45	23.60
D1	16.25	16.55	17.65
D2	0.95	1.19	1.25
*E	15.75	15.94	16.13
E1	13.10	14.02	14.15
E2	3.68	4.40	5.10
E3	1.00	1.45	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
*qP	3.51	3.61	3.65
*qP1		7.19REF	
*Q	5.49	5.79	6.00
S	6.04	6.17	6.30



外形尺寸 PACKAGE MECHANICAL DATA

T0-247

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

←

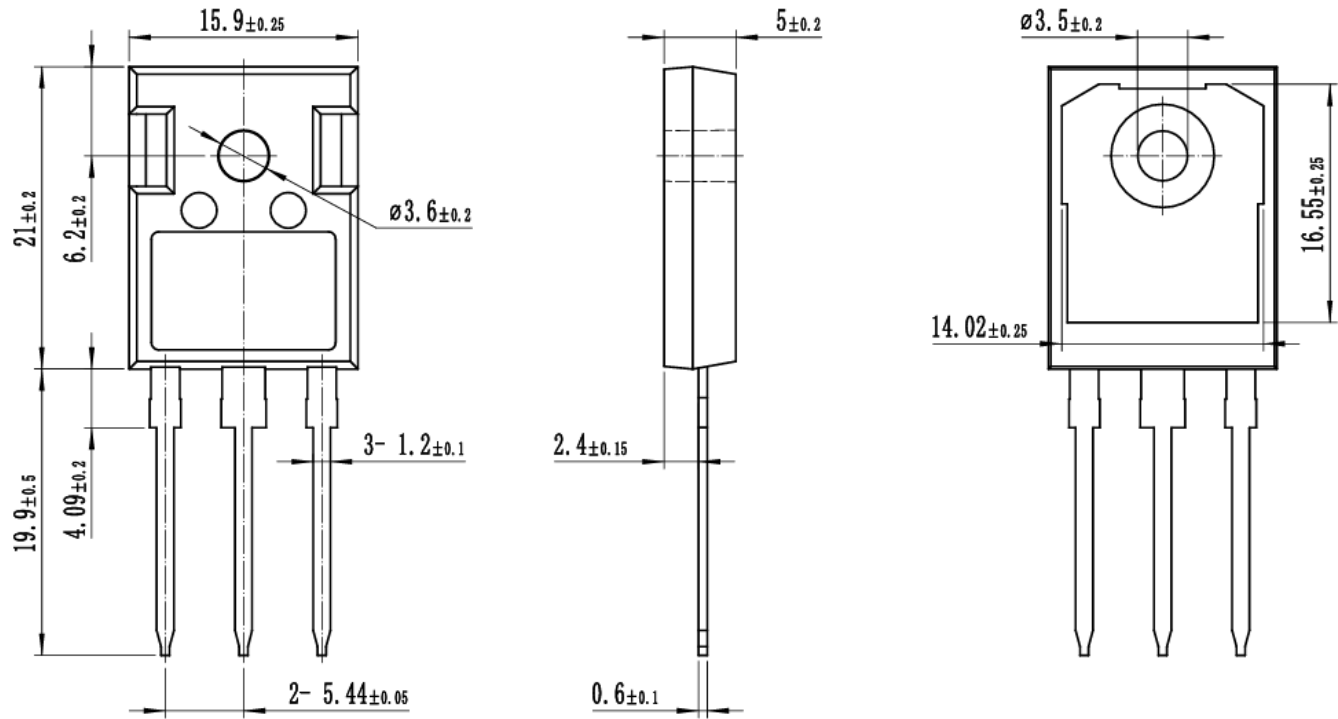




外形尺寸 PACKAGE MECHANICAL DATA

T0-247A

单位 Unit: mm

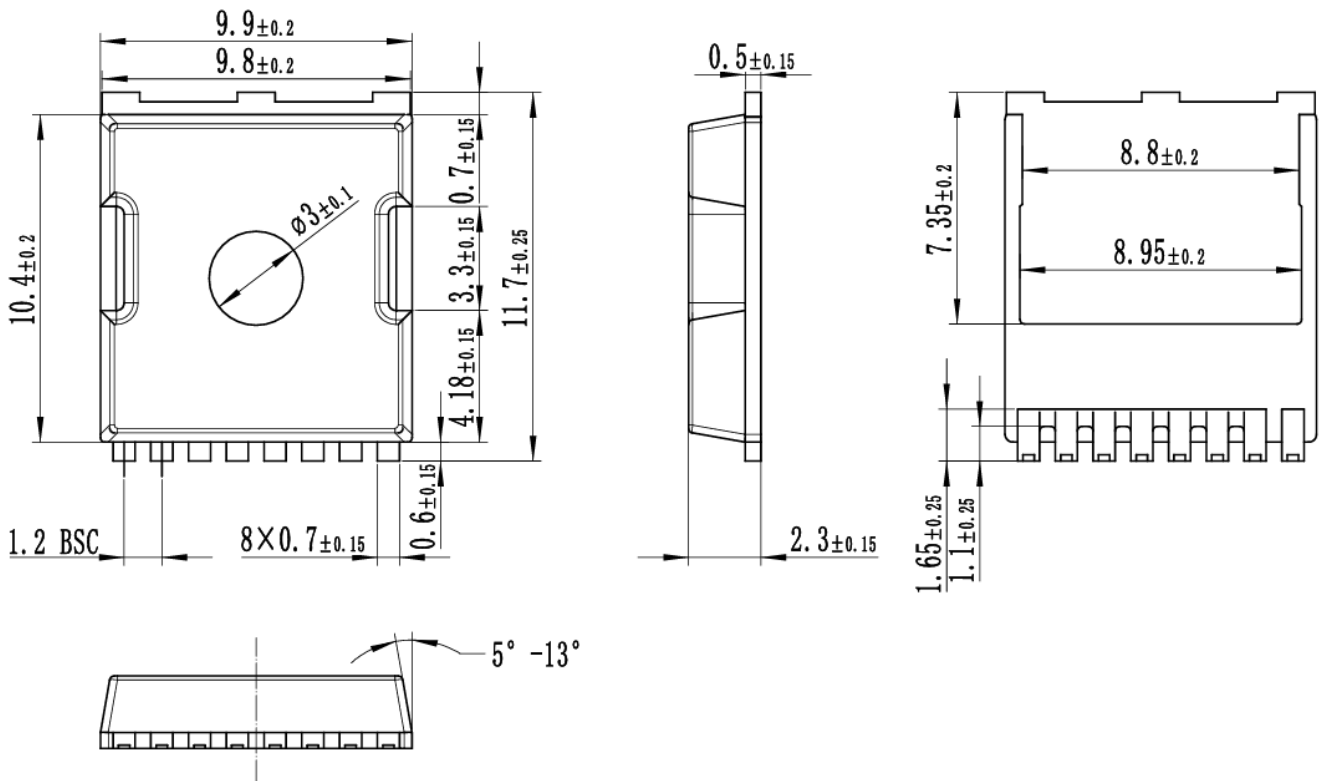




外形尺寸 PACKAGE MECHANICAL DATA

TOLL

单位 Unit: mm

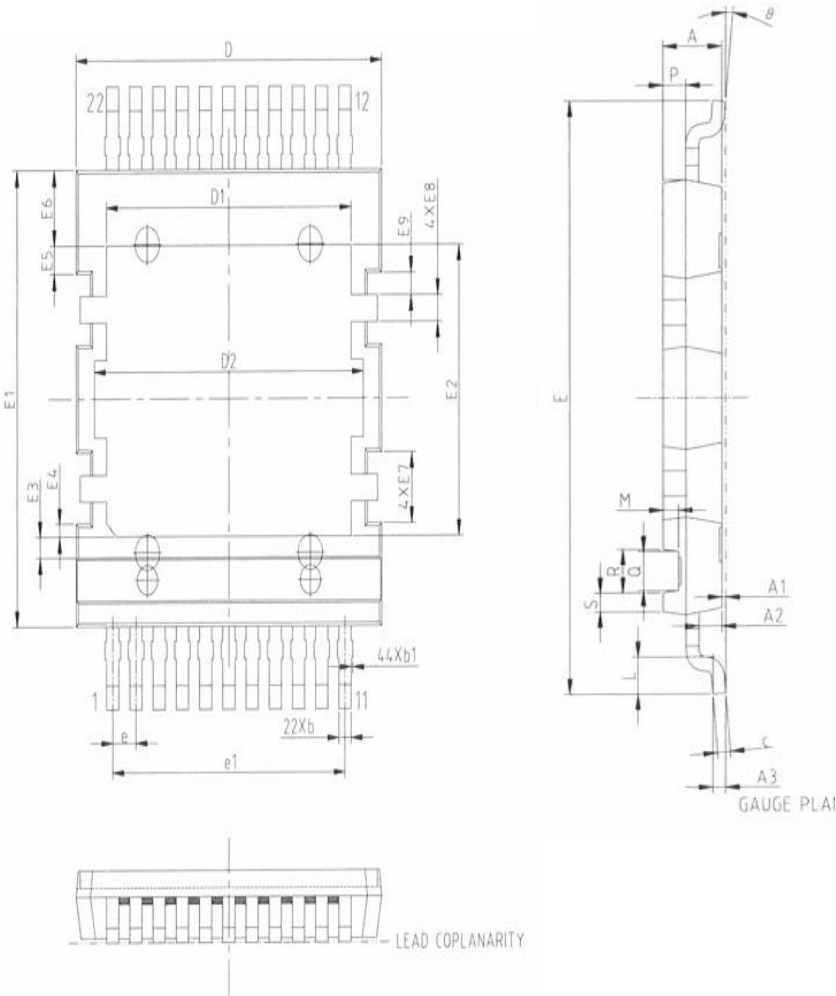




外形尺寸 PACKAGE MECHANICAL DATA

QDPAK

单位 Unit: mm



SYMBOL	mm		
	MIN	NOM	MAX
A	2.25	2.30	2.35
A1	0.00	-	0.15
A2	0.90 REF		
A3	0.50 BSC		
b	0.50	0.60	0.70
b1	0.00	-	0.15
c	0.46	0.52	0.58
D	14.90	15.00	15.10
D1	12.00 REF		
D2	13.2 REF		
E	20.81	20.96	21.11
E1	15.30	15.40	15.50
E2	9.83 REF		
E3	0.705 REF		
E4	0.45 REF		
E5	0.95 REF		
E6	2.53 REF		
E7	2.40 REF		
E8	0.90 REF		
E9	0.75 REF		
e	1.14 BSC		
e1	11.40 BSC		
L	1.30 REF		
M	0.60 REF		
P	0.90 REF		
Q	1.40 REF		
R	1.545 REF		
S	0.68 REF		
θ	0°	-	8°





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

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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.
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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