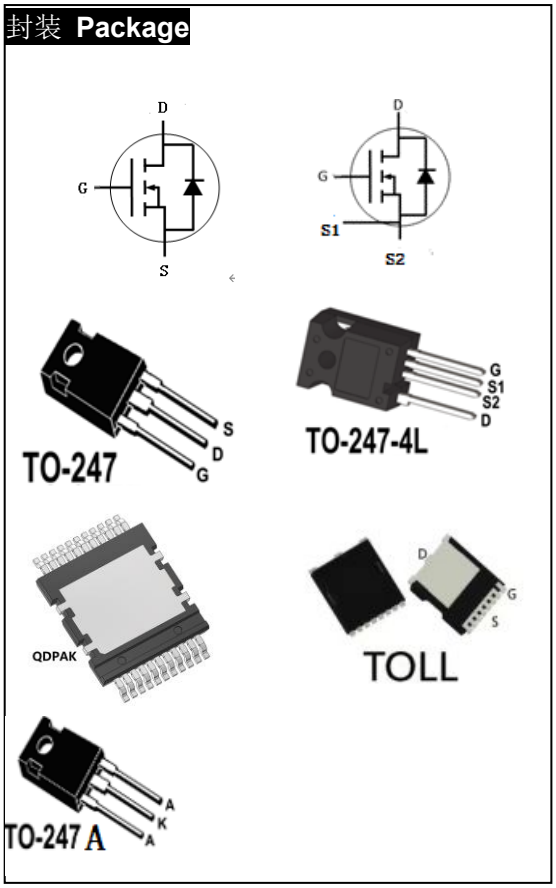
MG075R040B

主要参数 MAIN CHARACTERISTICS

ID	68A
V_{DS}	850V
Rdson-typ (@Vgs=18V)	39mΩ
Qg-typ	67nC

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
- ●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
- ●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	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-XH-BR	N/A	N/A	MG075R040B	TOLL

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}	850	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	68	A	V_{GS}=18V, T_C=25℃
		48	A	V_{GS}=18V, T_C=100℃
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	259 326	W	T_C=25℃ TO-247 T_C=25℃ QDPAK
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}=18 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	850	-	-	V
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D=5.6mA, T_C=25℃	2.7	3.3	4.1	V
		V_{DS} = V_{GS}, I_D=5.6mA, T_C=175℃	-	2.3	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=850V, V_{GS}=0V, T_C=25℃	-	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℃	-	39	51	mΩ
		V_{GS} =18V , I_D=18.8A, T_C=175℃	-	50	-	mΩ
		V_{GS} =20V , I_D=18.8A, T_C=25℃	-	35	44	mΩ
跨导 Transconductance	g_{fs}	V_{DS} = 20V, I_D=18.8A, T_J = 25°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-OnSwitching Energy	E_{ON}	V_{DS}=500V, V_{GS}=-5/18V, I_D= 18.8A, $R_{G(ext)}$ = 9.1Ω, L= 100μH	-	156	-	μJ
关断开关能量 Turn-OffSwitching Energy	E_{OFF}		-	20.4	-	
延迟时间 Turn-On delay time	td(on)	V_{DS}=500V, V_{GS}=-5/18V, I_D= 18.8A, $R_{G(ext)}$ = 9.1Ω, L= 100μH	-	7.0	-	ns
上升时间 Turn-On rise time	tr		-	16.3	-	ns
延迟时间 Turn-Off delay time	td(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 = 1 MHz , 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	-	

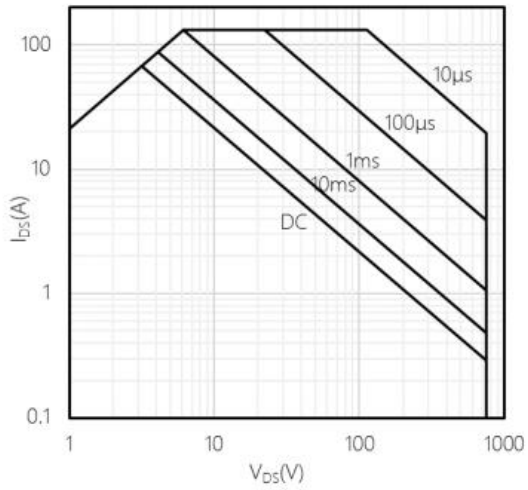
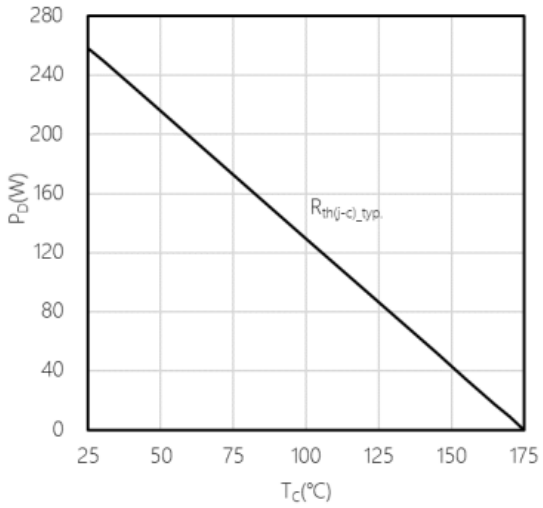
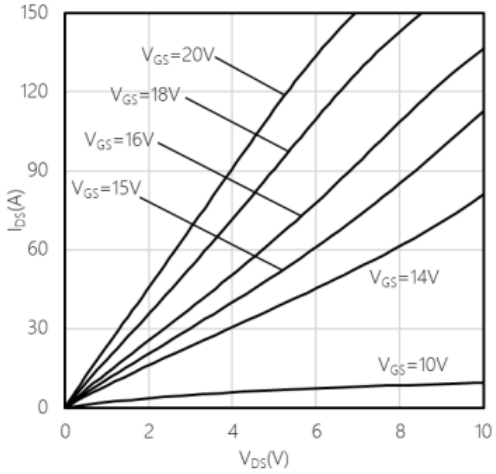
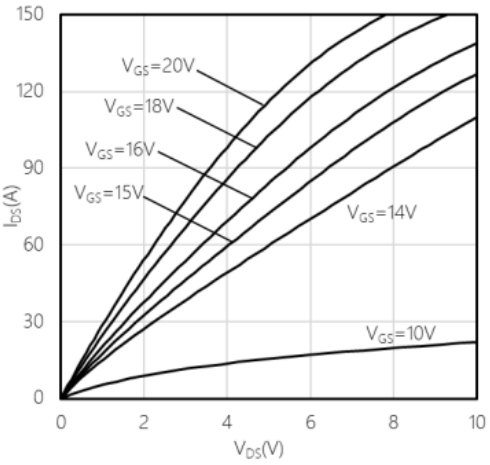
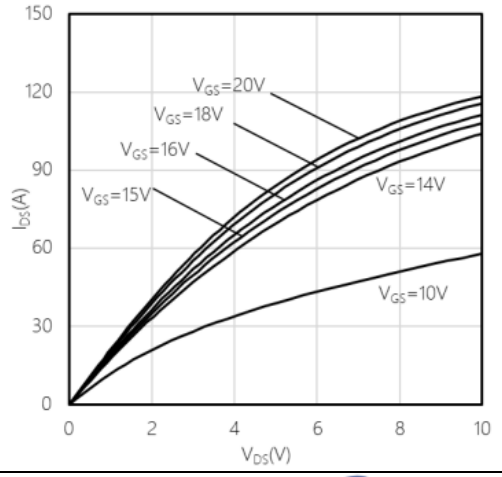
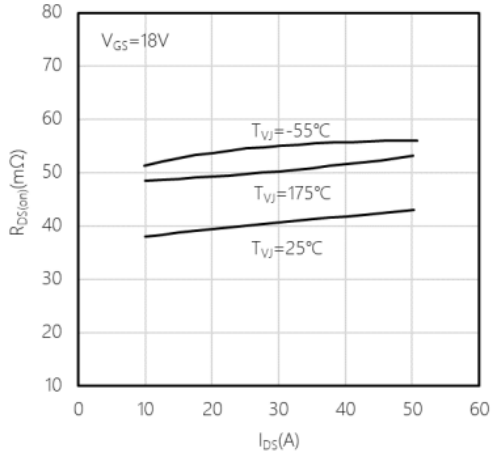
漏一源二极管特性 Drain-Source Diode Characteristics

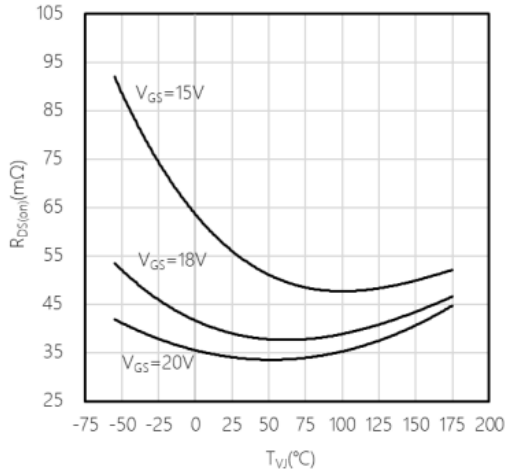
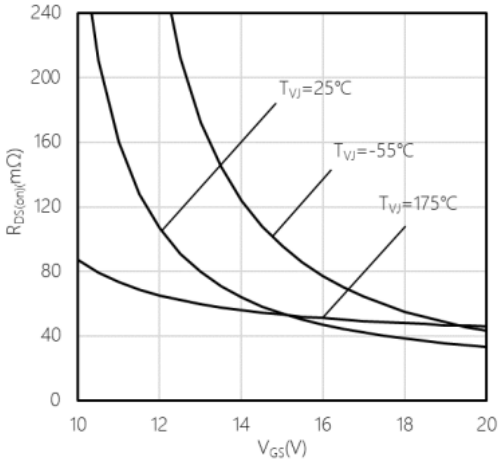
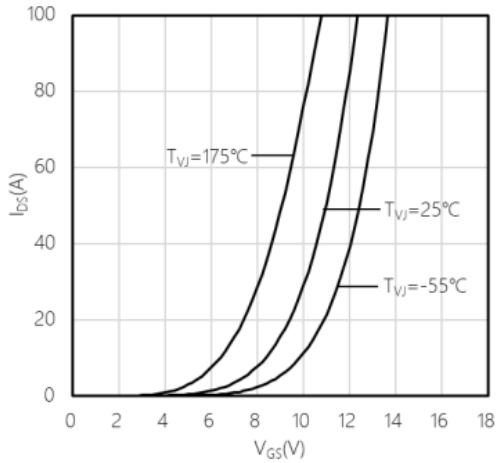
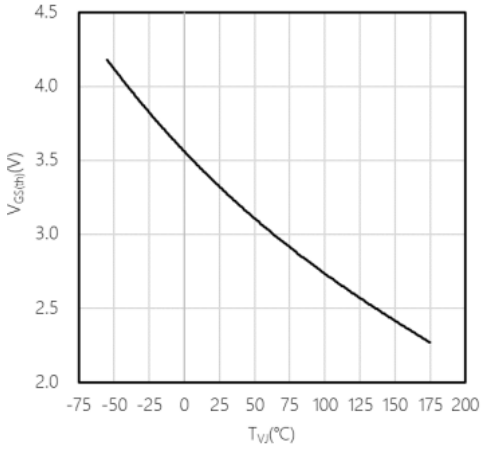
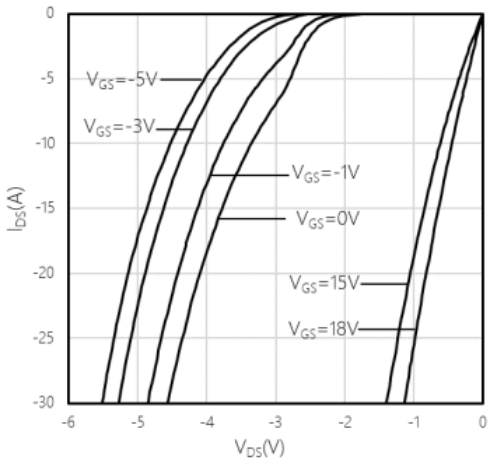
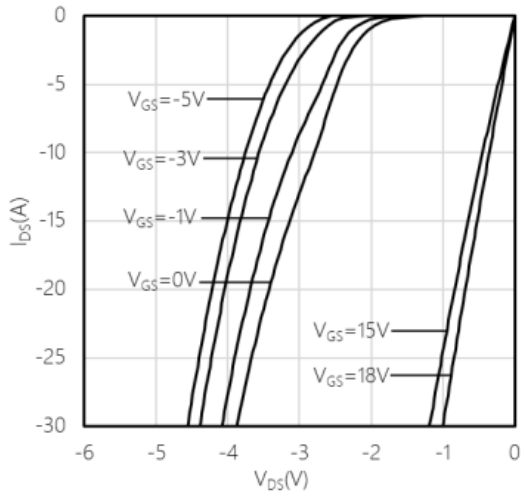
项　　目 Parameter	符　号 Symbol	测试条件 Tests conditions	典型 Typ	最大 Max	单位 Units
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} =-5V, I_{SD} = 9.5 A, T_J = 25 ° C	3.8	-	V
		V_{GS} =-5V, I_{SD} =9.5 A, T_J = 175 ° C	3.2	-	V
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	T_C=25℃	-	48	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/μs	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

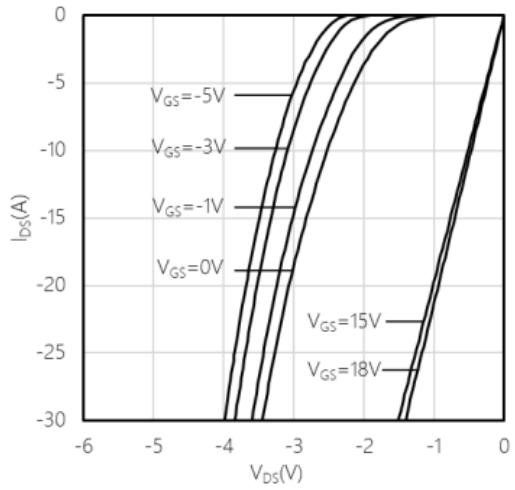
项　　目 Parameter	符　号 Symbol	典型 Typ		单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	TO-247	0.58	℃/W
		TO-247-4L	0.58	
		TO-247A	0.58	
		QDPAK	0.46	
		TOLL	0.46	
结到环境的热阻 Thermal Resistance, Junction to Ambient	Rth(j-A)	40		℃/W

典型性能 Typical Performance

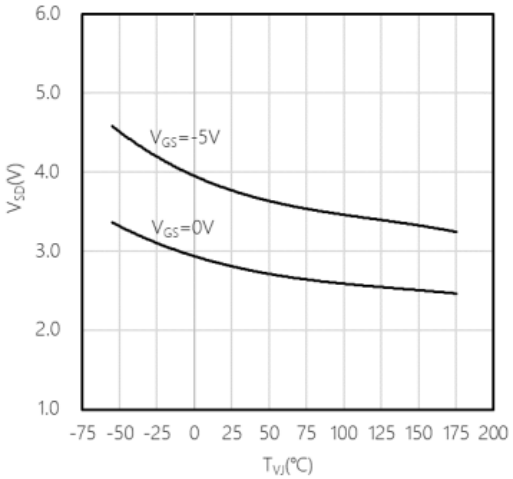
Safe operating area (SOA)	Power Derating （TO-247）
	
Typical output characteristic, V_{GS} as parameter T_{VJ} = -55 ℃	Typical output characteristic, V_{GS} as parameter T_{VJ} = 25 ℃
	
Typical output characteristic, V_{GS} as parameter T_{VJ} = 175 ℃	Typical on-state resistance as a function of drain 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
	

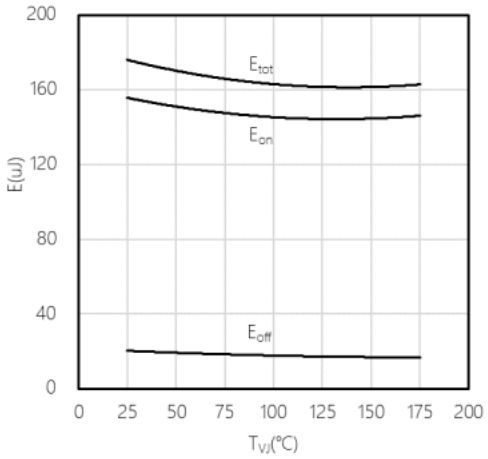
Typical reverse drain current as function of reverse drain voltage, VGS as parameter $I_{DS} = f_{(VDS)}$, T_{VJ} = 175 ° C



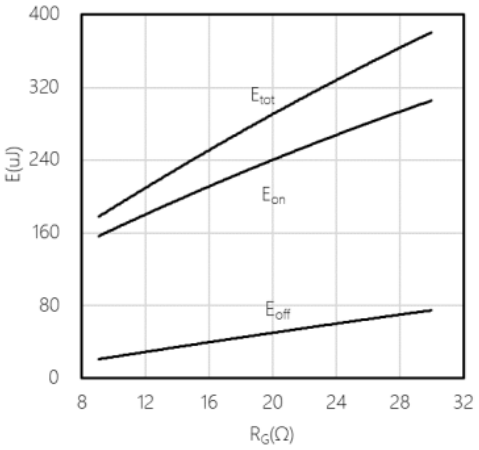
Typical reverse drain voltage as function of junction temperature $V_{SD} = f_{(TVJ)}$, I_{SD} = 9.5 A



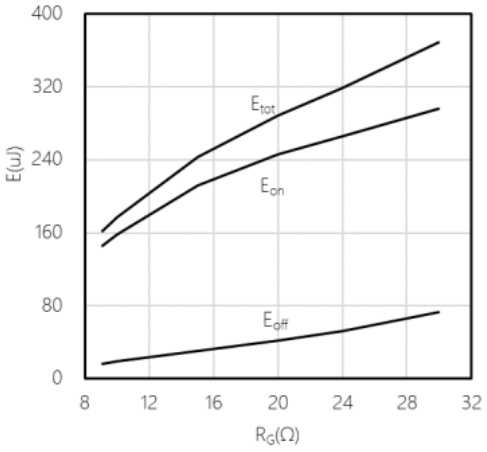
Typical switching energy as a function of junction temperature, 2nd device own body diode



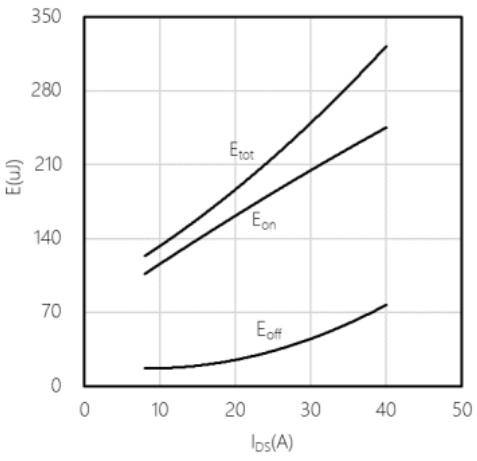
Typical switching energy losses as a function of gate resistance, 2nd device own body diode T_{VJ} = 25 ° C



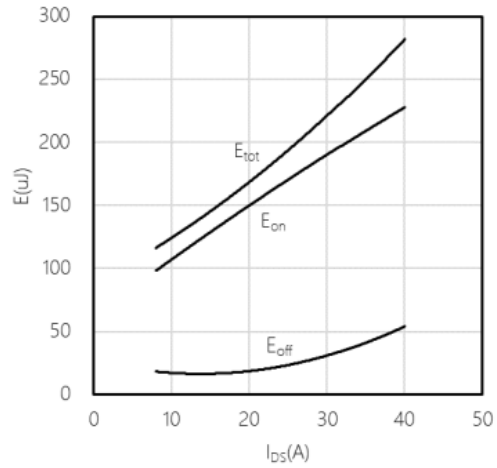
Typical switching energy as a function of junction temperature, 2nd device own body diode V_{GS} = -5 V
E = f(T_{VJ})



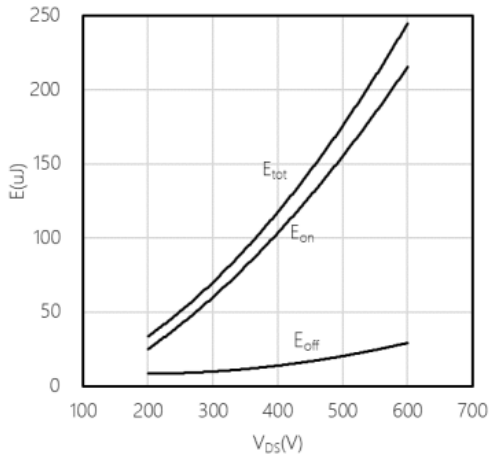
Typical switching energy losses as a function of gate resistance, 2nd device own body diode V_{GS} = -5 V
E = f($R_{G(ext)}$) T_{VJ} = 25 ° C



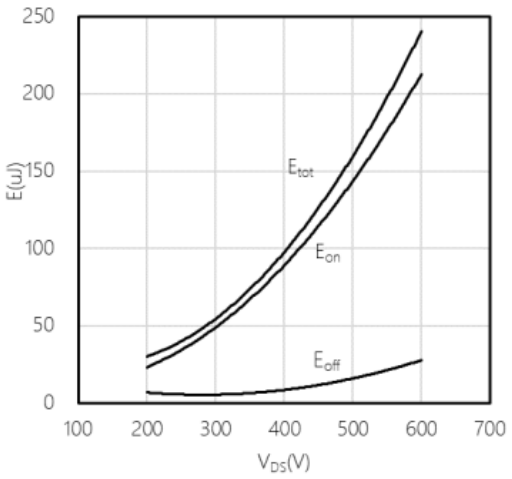
Typical switching energy losses as a function of gate resistance, 2nd device own body diode
V_{GS} = -5/18V E = f($R_{G(ext)}$) T_{VJ} = 175 ° C



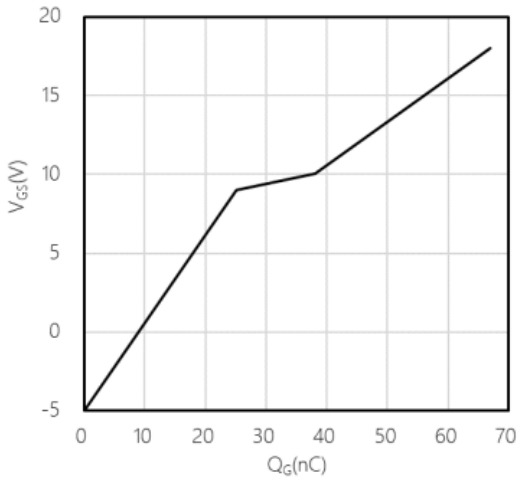
Typical switching energy losses as a function of V_{DS}, 2nd device own body diode T_{VJ} = 25 ° C



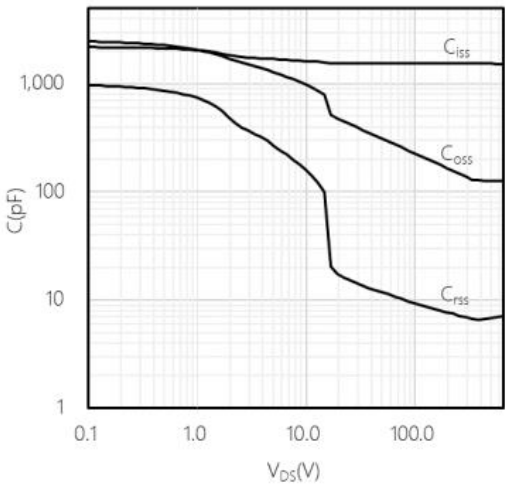
Typical switching energy losses as a function of V_{DS}, 2nd device own body diode T_{VJ} = 175 ° C



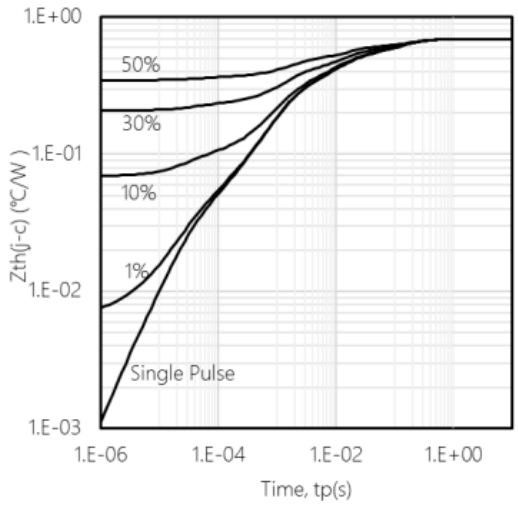
Typical gate charge



Typical capacitance as a function of drain-source voltage



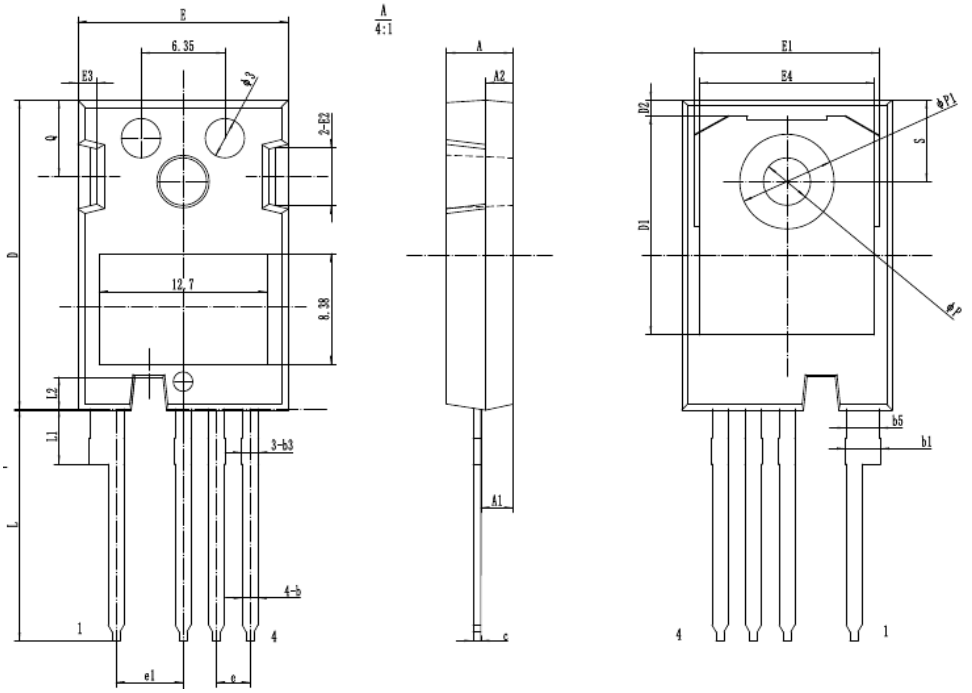
Transient thermal resistance (TO-247)



外形尺寸 PACKAGE MECHANICAL DATA

TO-247-4L

单位 Unit：mm

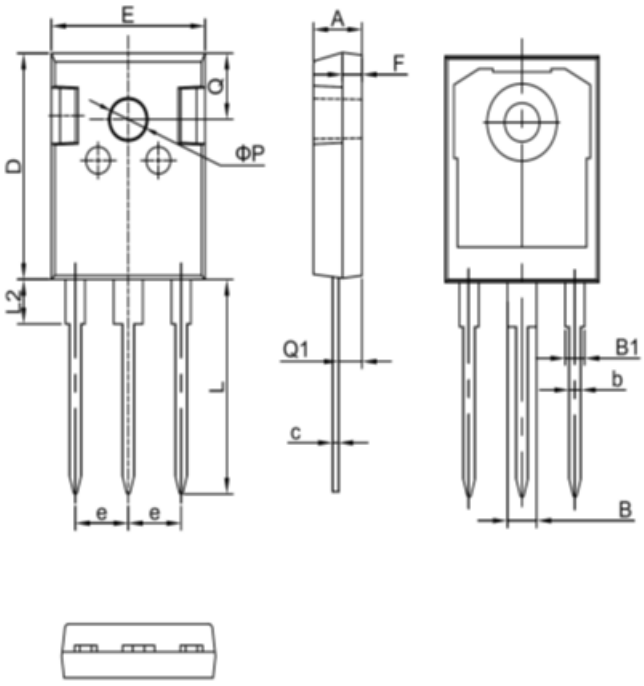


SYMBOL	mm		
	MIN	NOM	MAX
*A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.00	2.16
*b	1.07	1.20	1.33
b1	2.39	2.67	2.94
b3	1.07	1.30	1.60
b5	2.39	2.53	2.69
*c	0.55	0.60	0.68
*D	23.30	23.45	23.60
D1	16.25	16.55	17.65
D2	0.95	1.19	1.25
*E	15.75	15.94	16.13
E1	13.10	14.02	14.15
E2	3.68	4.40	5.10
E3	1.00	1.45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

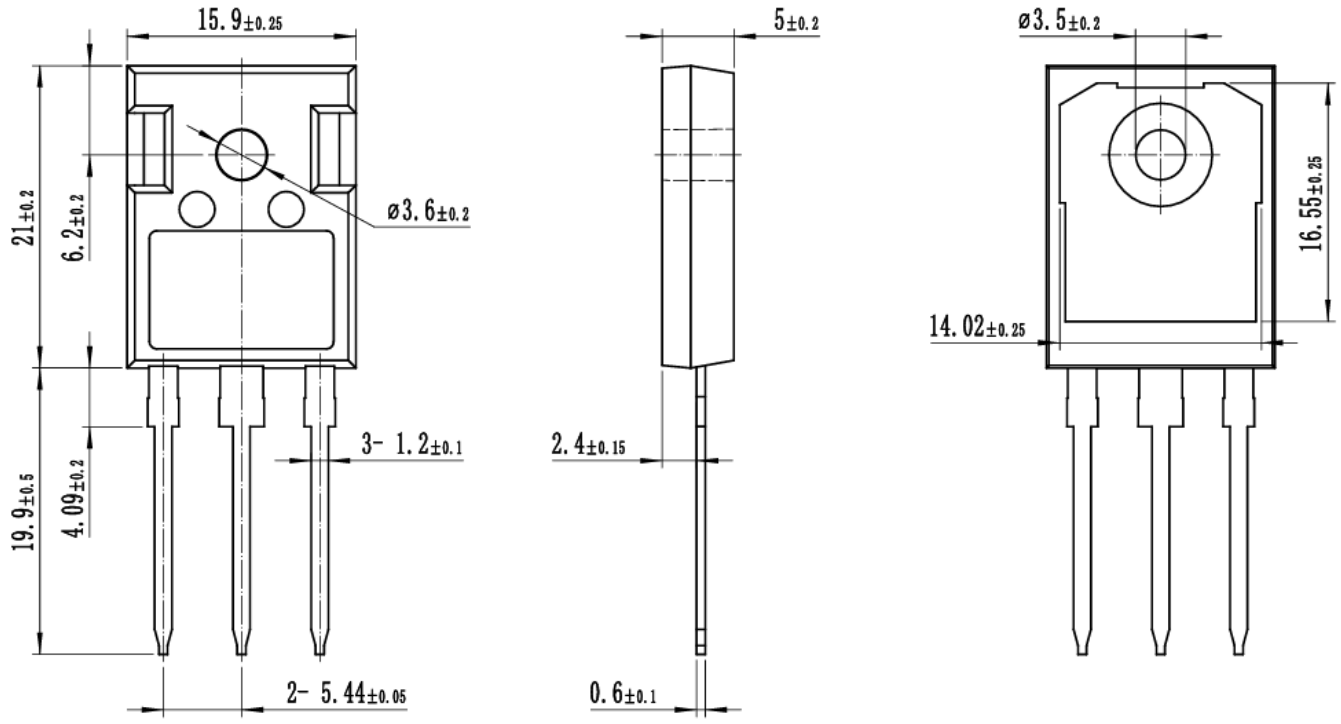


符号 symbol	MIN	MAX
A	4.90	5.10
B	2.95	3.35
B1	1.95	2.35
b	1.15	1.35
c	0.50	0.70
D	20.90	21.10
E	15.70	15.90
e	5.34	5.54
F	1.90	2.10
L	19.40	20.40
L2	4.03	4.23
Q	6.00	6.40
Q1	2.30	2.50
P	3.50	3.70

外形尺寸 PACKAGE MECHANICAL DATA

TO-247A

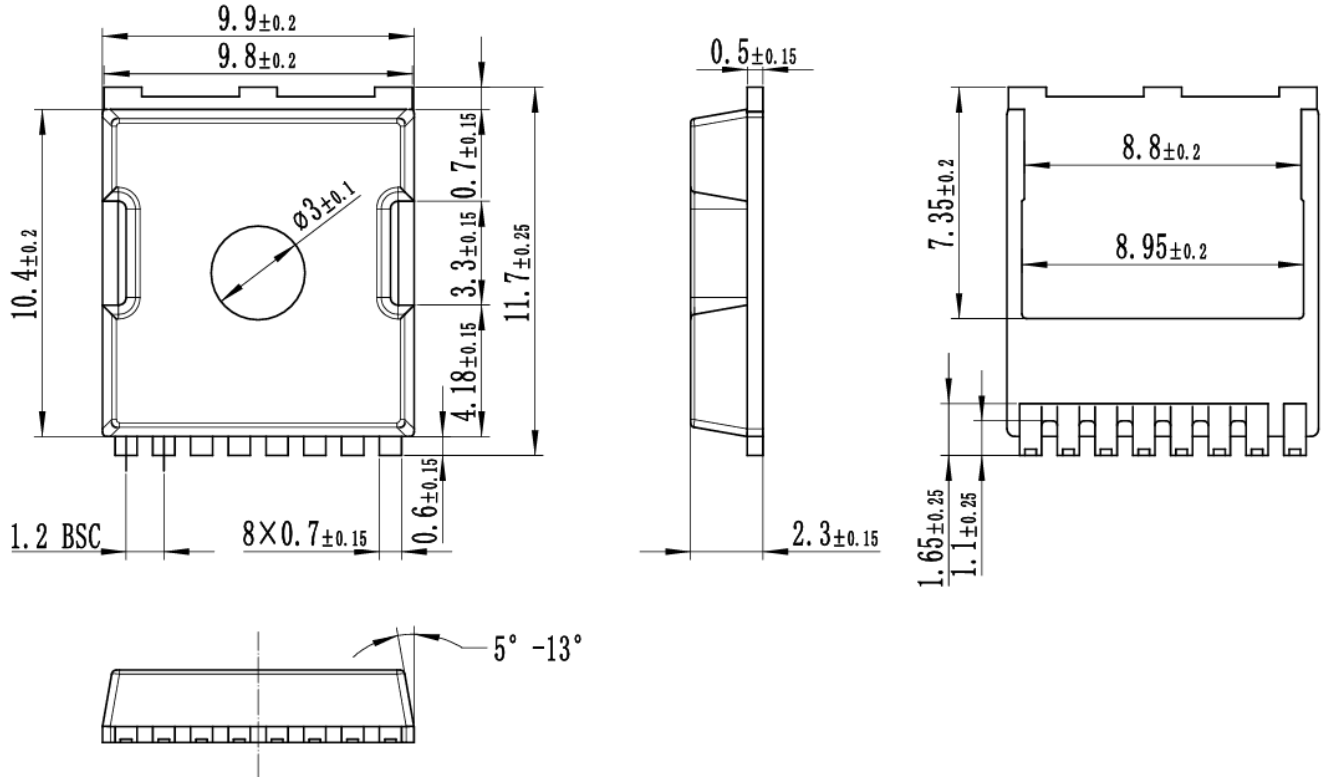
单位 Unit：mm



外形尺寸 PACKAGE MECHANICAL DATA

TOLL

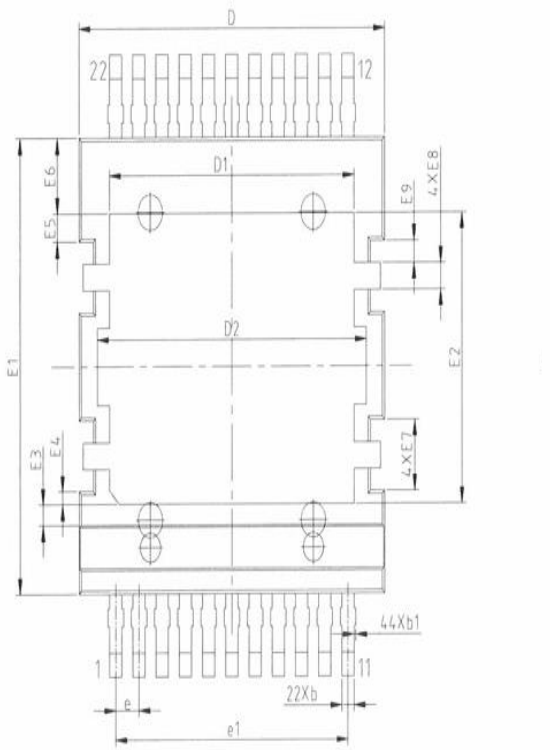
单位 Unit：mm

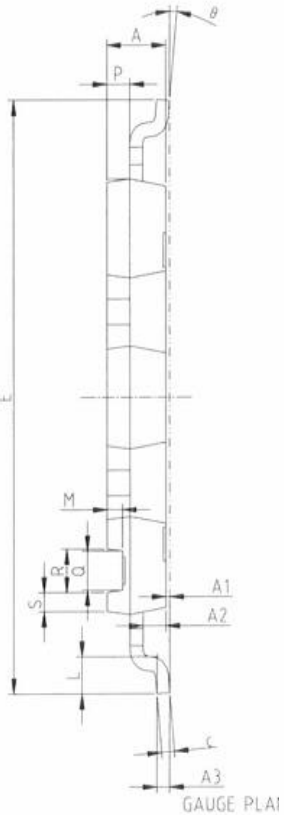


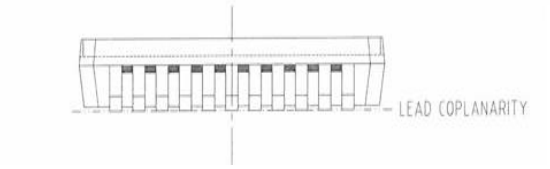
外形尺寸 PACKAGE MECHANICAL DATA

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

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.

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