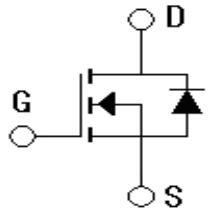
MT30NB6B

主要参数 MAIN CHARACTERISTICS

I_D	114A
V_{DSS}	30V
Rdson-max (@Vgs=10V)	2.8mΩ
Qg-typ	160nC

封装 Package



PDFN5*6

用途 APPLICATIONS

- 电信与工业领域隔离 DC/DC 转换
- 同步整流领域 DC/DC 与 AC/DC 转换

- Isolated DC/DC Converters in Telecom and Industrial
- Synchronous Rectification in DC/DC and AC/DC Converters

产品特性 FEATURES

- 低栅极电荷
- 低 Rdson)
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品

- Low gate charge
- Low Rdson
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- 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	N/A	N/A	MT30NB6B-AA-AR	MT30NB6B	PDFN5*6

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value	单位 Unit
		MT30NB6B	
最高漏极－源极直流电压 Drain-Source Voltage	V_{DSS}	30	V
连续漏极电流 Drain Current -continuous	I_D T=25℃	114*	A
	I_D T=100℃	91*	A
最大脉冲漏极电流（注 1） Drain Current - pulse （note 1）	I_{DM}	456*	A
最高栅源电压 Gate-Source Voltage	V_{GSS}	±20	V
单脉冲雪崩能量（注 2） Single Pulsed Avalanche Energy（note 2）	E_{AS}	277	mJ
雪崩电流（注 1） Avalanche Current （note 1）	I_{AS}	43	A
耗散功率 Power Dissipation	P_D T_C=25℃	62.5	W
	-Derate above 25℃	0.5	W/℃
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	℃

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature

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
关态特性 Off –Characteristics						
漏－源击穿电压 Drain-Source Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	30	-	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V, T_C=25℃	-	-	1	μA
		V_{DS}=30V,V_{GS}=0V, T_C=125℃	-	-	100	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	V_{DS}=0V,　V_{GS} =20V	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	V_{DS}=0V,　V_{GS} =-20V	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} ,　I_D=250μA	1.0	1.6	2.4	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =10V ,　I_D=20A	-	2.2	2.8	mΩ
		V_{GS} =4.5V ,　I_D=20A	-	2.6	3.2	mΩ
正向跨导 Forward Transconductance	g_{fs}	V_{DS} = 10V , I_D=20A （note 4）	-	42.6	-	S
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	V_{DS}=25V, V_{GS} =0V, f=1.0MH_Z	-	9300	-	pF
输出电容 Output capacitance	C_{oss}		-	904	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	813	-	pF

电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	$t_{d(on)}$	V_{DD}=20V,I_D=30A,R_G=3.0Ω （note 3，4）	-	27	-	ns
上升时间 Turn-On rise time	t_r		-	25	-	ns
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	90	-	ns
下降时间 Turn-Off Fall time	t_f		-	40	-	ns
栅极电荷总量 Total Gate Charge	Q_g	V_{DS} =15V , I_D=30A V_{GS} =10V （note 3，4）	-	160	-	nC
栅－源电荷 Gate-Source charge	Q_{gs}		-	18	-	nC
栅－漏电荷 Gate-Drain charge	Q_{gd}		-	34	-	nC
漏－源二极管特性及最大额定值 **Drain-Source Diode Characteristics and Maximum Ratings**						
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S	T_C=25℃	-	-	114	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	T_C=25℃	-	-	456	A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	T_J=25℃,V_{GS}=0V, I_S=30A	-	-	1.2	V
反向恢复时间 Reverse recovery time	t_{rr}	I_S=30A dI_F/dt=100A/μs (note 3)	-	43	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	40	-	nC

热特性 THERMAL CHARACTERISTIC

项 目 **Parameter**	符 号 **Symbol**	最大 **Max** **MT30NB6B**	单位 **Unit**
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	2	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	75	℃/W

注释：

1：脉冲宽度由最高结温限制

2：I_{AS}=43A, V_{DD}=30V, R_G=25 Ω,起始结温 T_J=25℃

3：脉冲测试：脉冲宽度≤300μs,占空比≤2%

4：基本与工作温度无关

Notes:

1：Pulse width limited by maximum junction temperature

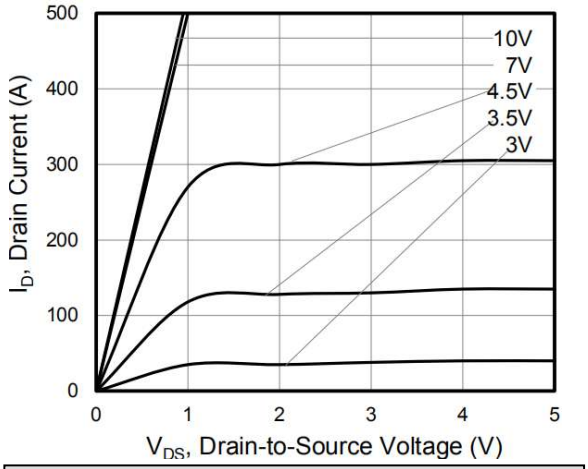
2： I_{AS}=43A, V_{DD}=30V, R_G=25 Ω,Starting T_J=25℃

3：Pulse Test：Pulse Width ≤300μs,Duty Cycle≤2%

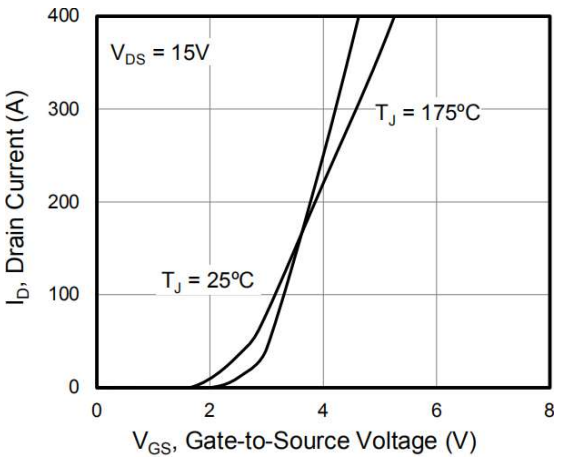
4：Essentially independent of operating temperature

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

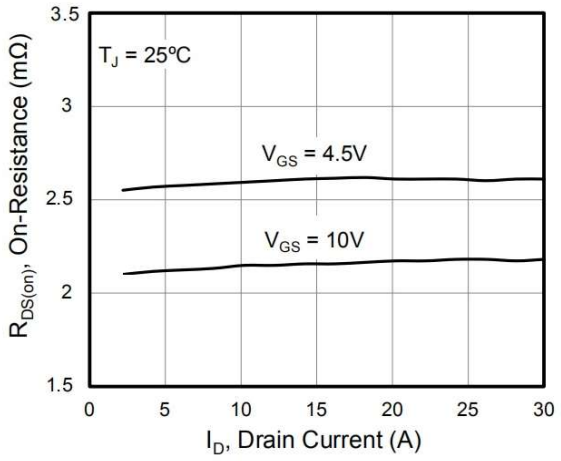
On-Region Characteristics



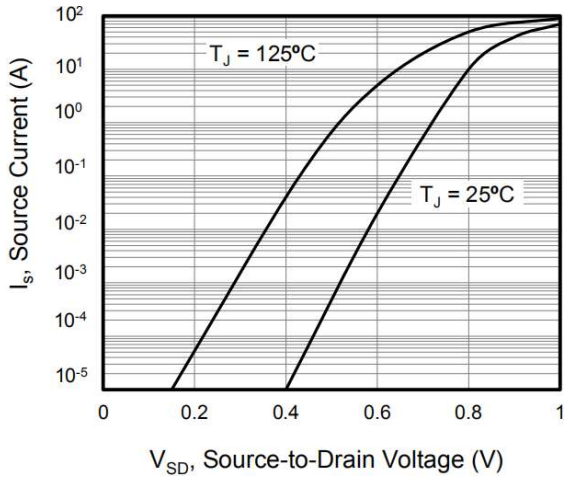
Transfer Characteristics



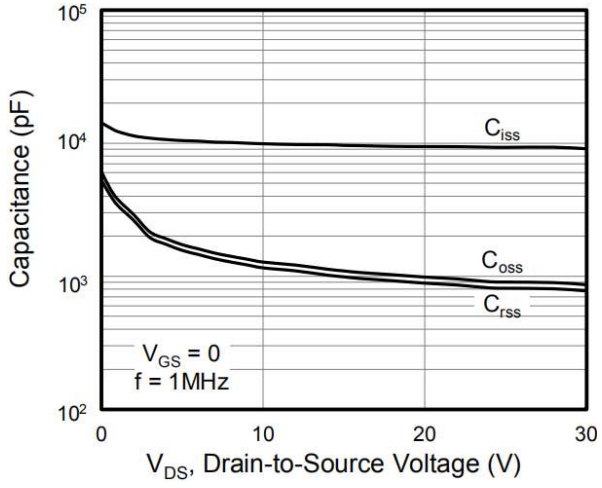
On-Resistance Variation vs. Drain Current



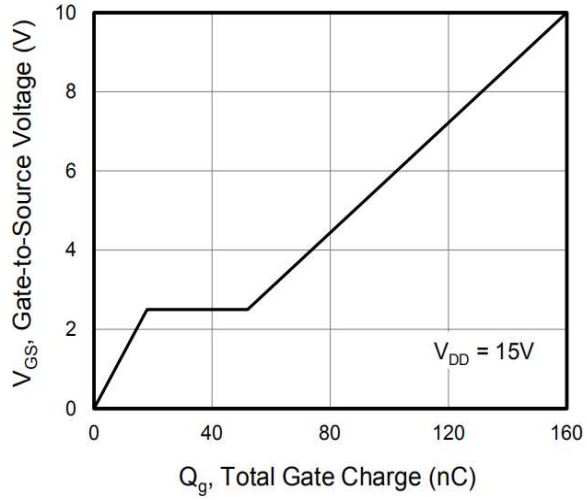
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Capacitance Characteristics

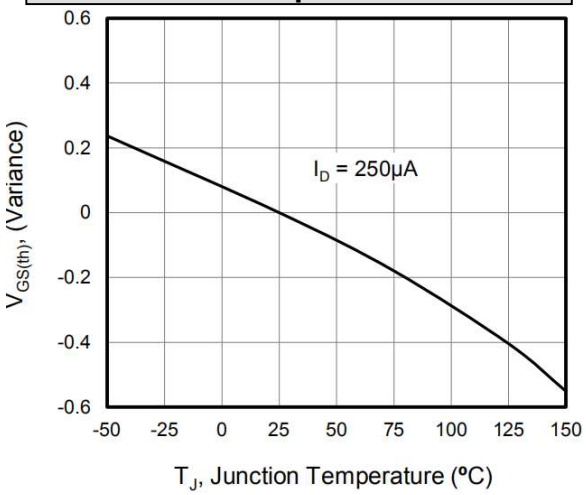


Gate Charge Characteristics

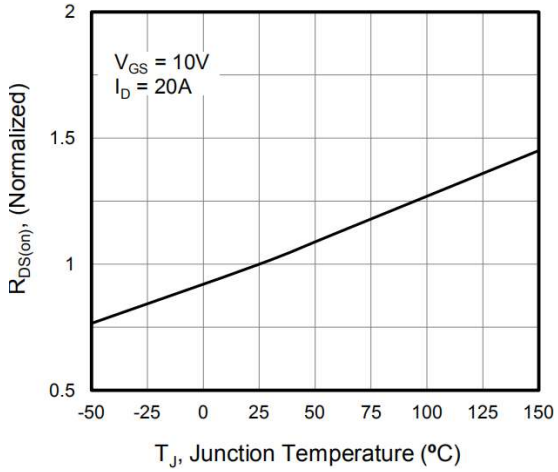


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

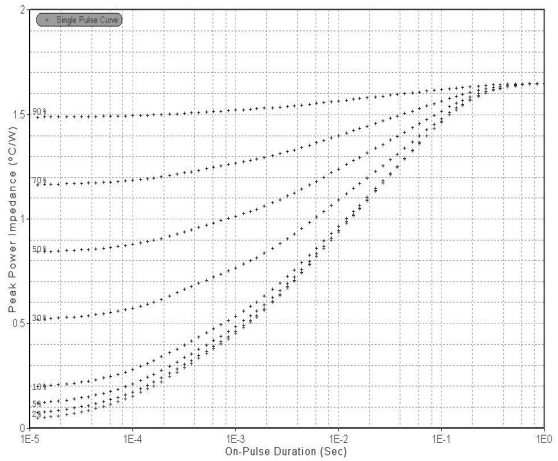
Threshold Voltage Variation vs. Temperature



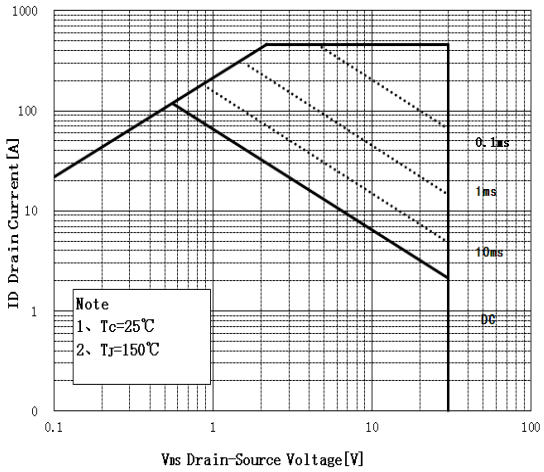
On-Resistance Variation vs. Temperature



Transient Thermal Response Curve



Maximum Safe Operation Aera



外形尺寸 PACKAGE MECHANICAL DATA

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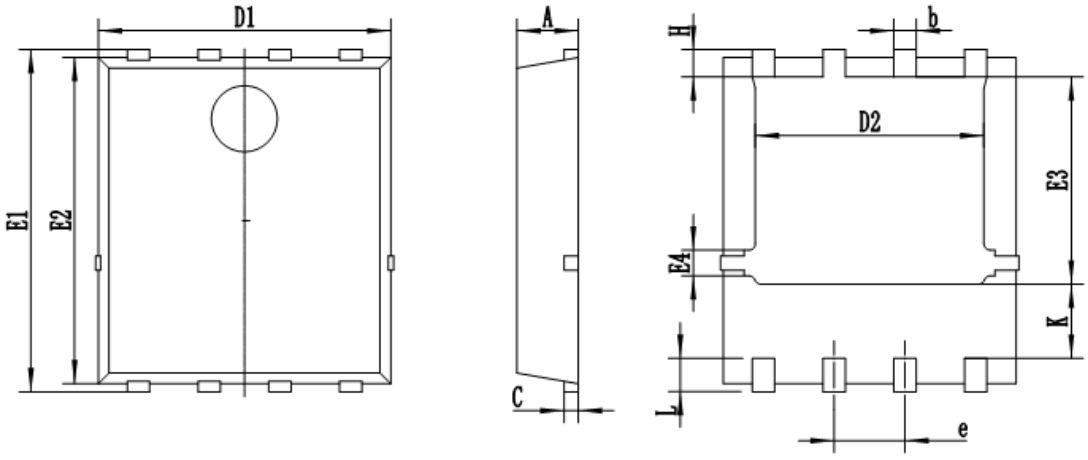
单位 Unit：mm



SYMBOL	mm	
	MIN	MAX
A	0.95	1.25
C	0.1	0.4
b	0.25	0.55
D1	4.9	5.5
D2	3.75	4.3
e	1.27 BSC	
E1	5.9	6.4
E2	5.6	6.1
E3	3.47	3.97
E4	0.31	0.61
L	0.25	0.75
H	0.35	0.65
K	1.13	1.53

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