

650V N-channel GaN FET in DFN6X8

GP16530DS

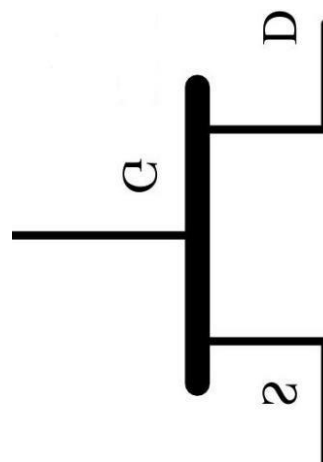
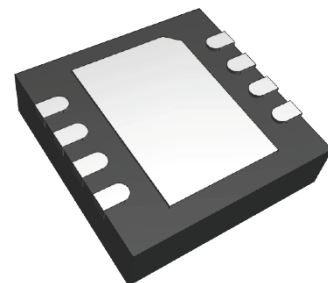
PRODUCT SUMMARY (TYPICAL)	
R _{DS(on)} (mΩ)	42.7
Q _{rr} (nC)	78
V _{DS} (V)	650

Features 产品特点：

- Low Q_{rr}
- Free-wheeling diode not required
- High-side Quiet Tab™ for reduced EMI
- RoHS compliant
- High frequency operation

Applications 产品应用：

- Compact DC-DC converters
- AC motor drives
- Battery chargers
- Switch mode power supplies

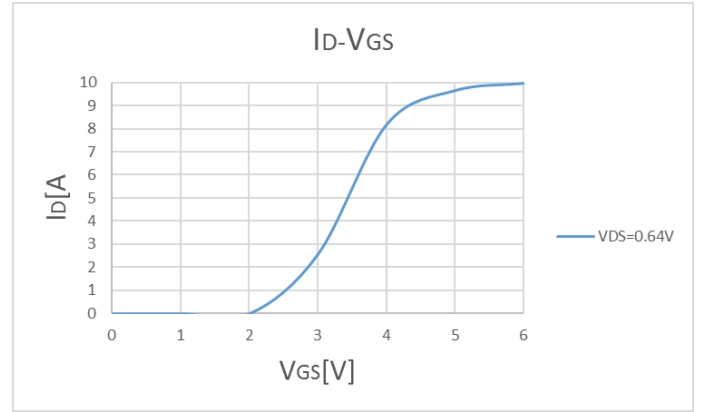
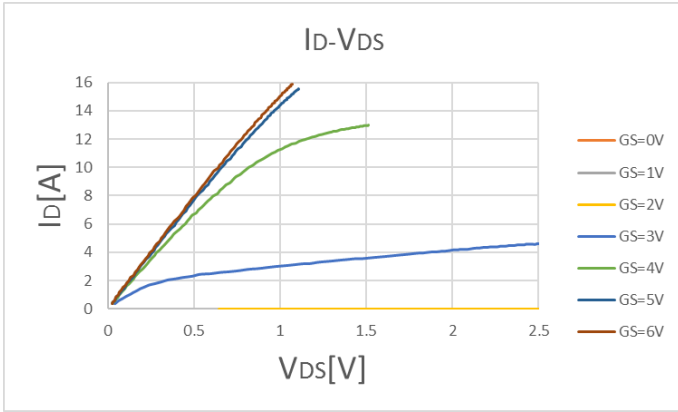


Absolute Maximum Ratings (T _C =25 °C unless otherwise stated)			
Symbol 符号	Parameter 参数名称	Limit Value 极限值	Unit 单位
ID 25° C	漏极电流（直流） @T _c =25 ° C	39	A
IDM	漏极脉冲电流(pulse width:50 us)	78	A
VDSS	漏源击穿电压	650	V
VGSS	栅源电压（直流）	±6	V
TJ	结温工作温度	-55 to 175	° C
PD 25° C	漏极最大允许耗散功率	165	W
TC	管壳工作温度	-55 to 150	° C
TS	贮存温度	-55 to 150	° C
TCsold	焊接峰值温度b	260	° C

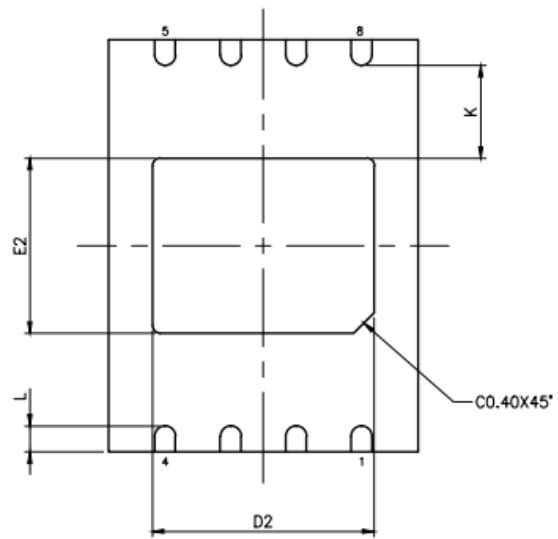
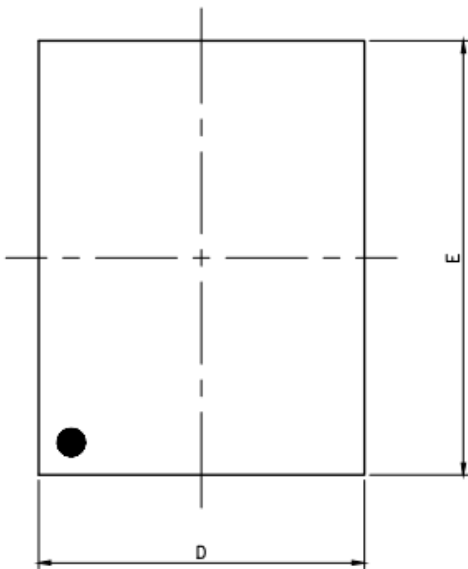
Thermal Resistance			
符号	参数名称	典型值	单位
R _{θ JC}	结壳热阻	0.8	° C /W

Electrical Characteristics (T _C =25 °C unless otherwise stated)						
Symbol 符号	Parameter 参数名称	Min 最小值	Typical 典型值	Max 最大值	Unit 单位	Test Conditions 测试条件
Dynamic						
VDSS-MAX	漏源击穿电压	650			V	VGS=0 V, ID=3 μA
						VGS=0 V, ID=300 μA
VGS(th)	栅极阈值电压		1.4		V	VDS=0.1, ID=36 mA
RDS(on)	漏源通态电阻 (T _J = 150 °C)		106		mΩ	VGS=6V, ID =15A, T _J = 150 °C
RDS(on)	漏源通态电阻 (T _J = 25 °C)		42.7		mΩ	VGS=6V, ID =15A, T _J = 25 °C
IDSS	漏极漏电流测试		0.9		μA	VDS=650V, VGS=0V, T _J = 25 °C
			30		μA	VDS=650V, VGS=0V, T _J = 150 °C
IGSS	漏极正向漏电流		57		μA	VGS= 6 V, VDS=0V, T _J = 25 °C
	漏极正向漏电流		1008		μA	VGS= 6 V, VDS=0V, T _J = 150 °C
Dynamic						
CISS	栅短路共源输入电容		255		pF	Vds=400V, Vgs=0, f=1MHz
COSS	栅短路共源输出电容		84			
CRSS	栅短路共源反向传输电容		1.5			
Qg	总栅极电荷b		5.7	-	nC	Vds=400V, Id=3A, Vg=0~6V
Qgs	栅源电荷		0.3			
Qgd	栅漏电荷		3.3			
td(on)	开通延迟时间		6.2		ns	Vgs=400V, Vgs=0~6V, Id=15A, Rg=3.3 Ohm, Wheeling Diode=G-S Shorted DUI
tr	上升时间		12.7			
Td(off)	关断延迟时间		5.8			
tf	下降时间		10			
Rg	Gate Resistance		0.8		Ω	Vs=Vd=0V, Vg=2V, f=1MHz
Rdson (Dynamic)	Dynamic Rdson		1.3		Ratio	Vds=400V, Id=3A, f=10KHz, duty=10%
Inverse operation						
ID-VD	源极反向电流		78	-	A	VGS=6V, VDS=10V, Pulse Width=50us
VSD	源漏反向电压		2.7		V	VGS=0V, ISD=15A
trr	反向恢复时间		14		ns	Vr=400V, If=15A, dI/dt=100A/us
Qrr	反向恢复充电电量		78		nC	

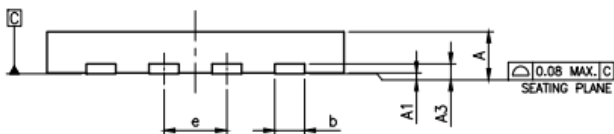
Electrical Characteristic Curve(TC=25°C):



Packaging Format (DFN6X8, Unit: mm):



PAD SIZE : 207X21* MIL/224X21* MIL/240X21* MIL



JEDEC OUTLINE	PACKAGE TYPE					
	N/A			N/A		
	WDFN(X609)			VDFN(X609)		
PKG CODE	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
SYMBOLS						
A	0.70	0.75	0.80	0.80	0.85	0.90
A1	0.00	0.02	0.05	0.00	0.02	0.05
A3	0.203 REF.			0.203 REF.		
D	5.90	6.00	6.10	5.90	6.00	6.10
E	7.90	8.00	8.10	7.90	8.00	8.10
e	1.27 BSC			1.27 BSC		
K	0.20	1.80	2.40	0.20	1.80	2.40

PAD SIZE	b			L			D2			E2			LEAD FINISH		JEDEC CODE
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	Pure Tin	PPF	
207X21* MIL	0.35	0.40	0.45	0.45	0.50	0.55	4.25	4.30	4.35	3.35	3.40	3.45	V	V	N/A
224X21* MIL	0.35	0.40	0.45	0.45	0.50	0.55	4.25	4.30	4.35	3.35	3.40	3.45	V	V	N/A
240X21* MIL	0.35	0.40	0.45	0.45	0.50	0.55	4.25	4.30	4.35	3.35	3.40	3.45	V	V	N/A
261X21* MIL	0.35	0.40	0.45	0.45	0.50	0.55	4.25	4.30	4.35	3.35	3.40	3.45	V	V	N/A

"*"表示泛用字元，此泛用字元可能被其他不同字元所取代，实际的字元请参照 bonding diagram 所示。

管脚排列：

电极	引脚
Gate	4
Source	1, 2, 3
Drain	5, 6, 7, 8