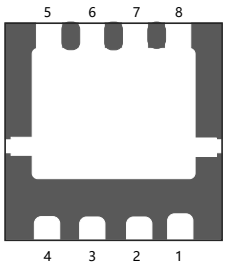
GPT022N03FDA

30V N-Channel MOSFET

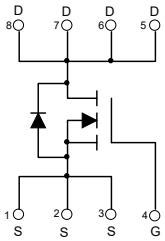
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	1.5mΩ@10V	130A
	3.0mΩ@4.5V	

PLP3.3X3.3-8L



Schematic diagram



Feature

- Split Gate Trench technology
- Excellent gate charge × $R_{DS(on)}$ product
- Excellent package for good heat dissipation

Application

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectitication

MARKING:

T022N03 = Device code

XX = Date Code

ABSOLUTE MAXIMUM RATINGS (T_C = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[4]		I_D	130	A
Pulsed Drain Current[3]		I_{DM}	520	A
Avalanche Current[1]		I_{AS}	27	A
Single Pulse Avalanche Energy[1]		E_{AS}	182	mJ
Power Dissipation[2]		P_D	71	W
Thermal Resistance from Junction to Case	Steady-State	$R_{\theta JC}$	1.76	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[5]						
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	2	3	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 15A		1.5	2.2	mΩ
		V_{GS} = 4.5V, I_D = 10A		3.0	4.8	
Forward tranconductance	g_{FS}	V_{DS} = 5V, I_D = 10A		30		S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		2190		pF
Output capacitance	C_{oss}			1200		
Reverse transfer capacitance	C_{rss}			153		
Switching Characteristics						
Total gate charge	Q_g	V_{DS} = 15V, I_D = 35A, V_{GS} = 10V		39.2		nC
Gate-source charge	Q_{gs}			5.9		
Gate-drain charge	Q_{gd}			6.3		
Turn-on delay time	$t_{d(on)}$	V_{DD} = 15V, I_D = 35A, V_{GS} = 10V, R_G = 1.6Ω		4.9		ns
Turn-on rise time	t_r			6.9		
Turn-off delay time	$t_{d(off)}$			25		
Turn-off fall time	t_f			4.8		
Diode Characteristics						
Diode Forward Voltage[5]	V_{SD}	V_{GS} = 0V, I_S = 10A		0.76	1.2	V
Maximum Diode Continuous Current[4]	I_{SM}				300	A

Notes :

1.E_{AS} condition: V_{DD} = 15V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

2.The power dissipation P_D is based on $T_{J(MAX)}$ = 150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.

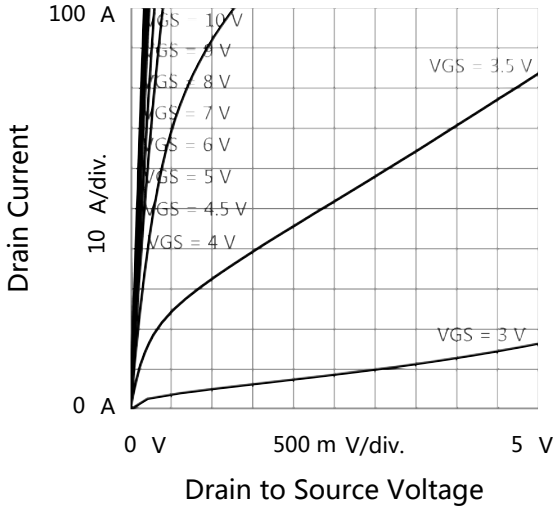
3.Single pulse width limited by junction temperature $T_{J(MAX)}$ = 150°C.

4.The maximum current rating is package limited.

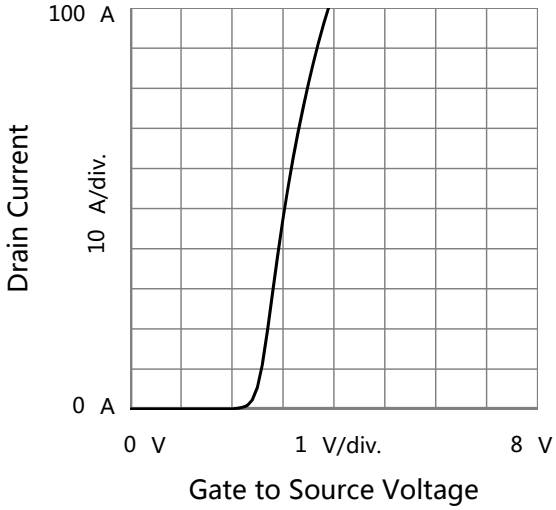
5.The static characteristics are obtained using <380ms pulses, duty cycle 2% max

Typical Electrical and Thermal Characteristics

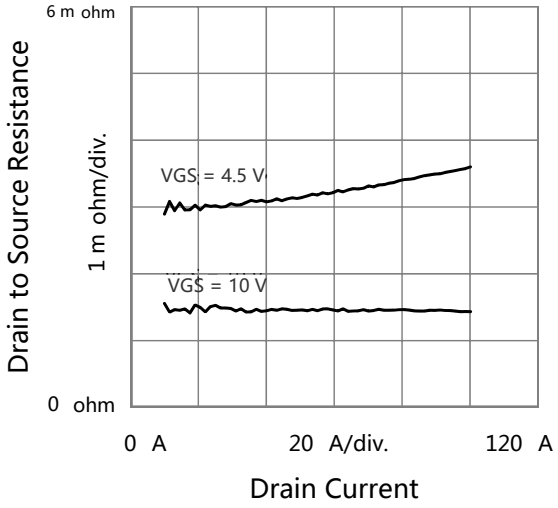
Output Characteristics



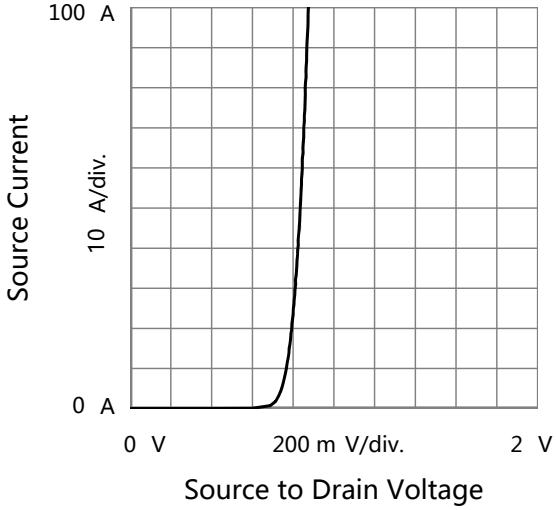
Transfer Characteristics



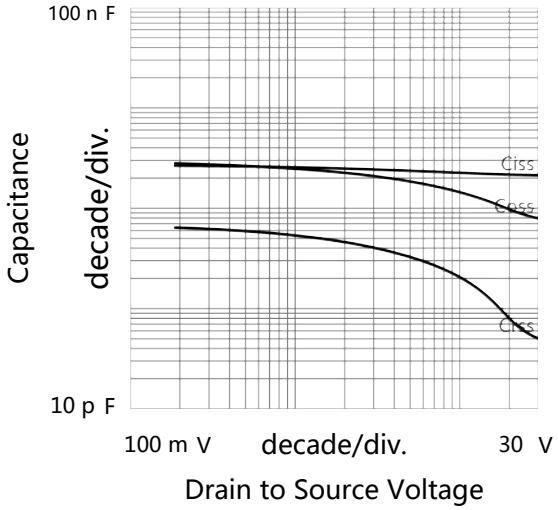
Drain to Source Resistance vs. Drain Current



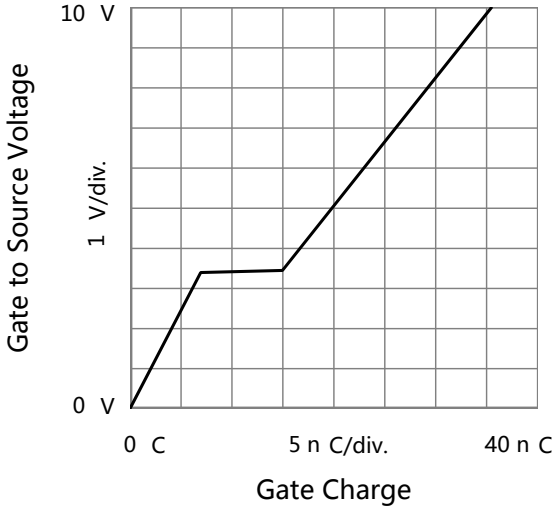
Body Diode Forward Characteristics



Capacitances

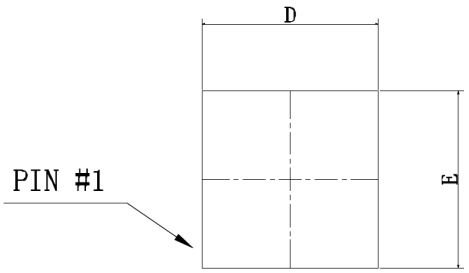


Gate Charge

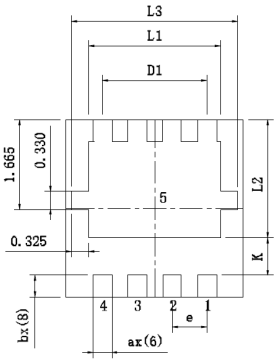


PLP3.3X3.3-8L Package Information

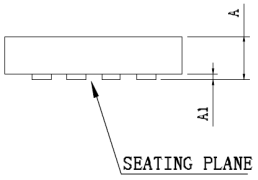
symbol	Dimension in mm		
	MIN	NOM	MAX
A	0.650	0.700	0.750
A1	0.050	0.100	0.150
D	3.200	3.300	3.400
E	3.200	3.300	3.400
D1	---	1.950	---
e	---	0.650	---
ax(6)	0.300	0.350	0.400
bx(8)	0.350	0.400	0.450
L1	2.400	2.450	2.500
L2	2.150	2.200	2.250
L3	3.050	3.100	3.150
K	0.600	0.700	0.800



Top View



Bottom View



Side View