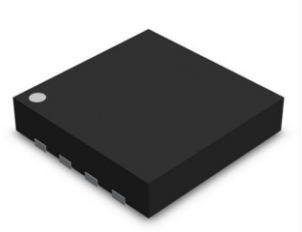
GPTE090N06LGF

60V N-Channel MOSFET

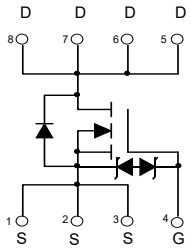
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	8.5mΩ@10V	35A
	12mΩ@4.5V	

DFN3x3-8L



Schematic diagram



Feature

- Split Gate Trench Technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested
- ESD Protect

Application

- Industrial Power Supply
- Load Switch

MARKING:

090N06 = Device Code

XX = Date Code

Solid Dot = Green Indicater

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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	60	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	35	A
Pulsed Drain Current[2]		I_{DM}	140	A
Single Pulsed Avalanche Current[3]		I_{AS}	22	A
Single Pulsed Avalanche Energy[3]		E_{AS}	121	mJ
Power Dissipation[5]	T_C = 25℃	P_D	35	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	83.3	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	3.5	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 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	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±5	uA
On Characteristics[4]						
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 = 12A		8.5	12	mΩ
		V_{GS} = 4.5V, I_D =12A		12	18	
Forward Transconductance	g_{FS}	V_{DS} = 5V, I_D = 12A		20		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 30V, V_{GS} = 0V, f = 1MHz		1160		pF
Output Capacitance	C_{oss}			291		
Reverse Transfer Capacitance	C_{rss}			18		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		2		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 30V, V_{GS} = 10V, I_D = 12A		19		nC
Gate-source Charge	Q_{gs}			3.6		
Gate-drain Charge	Q_{gd}			3.1		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 30V, V_{GS} = 10V, R_L = 4.5Ω R_G = 3Ω		6.6		ns
Turn-on Rise Time	t_r			15		
Turn-off Delay Ttime	$t_{d(off)}$			23		
Turn-off Fall Time	t_f			19		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 12A	0.5		1.2	V

Notes :

1.The maximum current rating is limited by package.And device mounted on a large heatsink

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

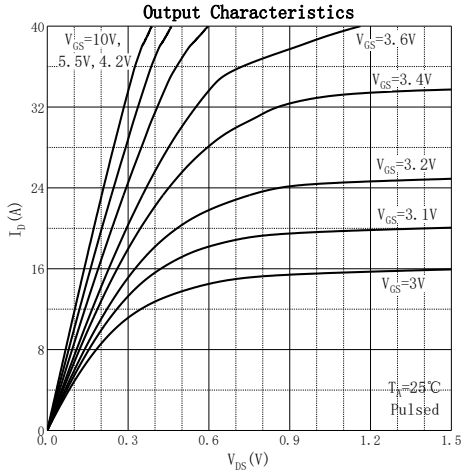
3.E_{AS} condition: V_{DD} = 30V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

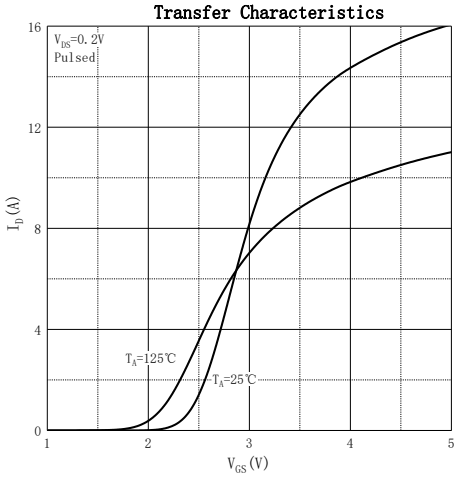
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

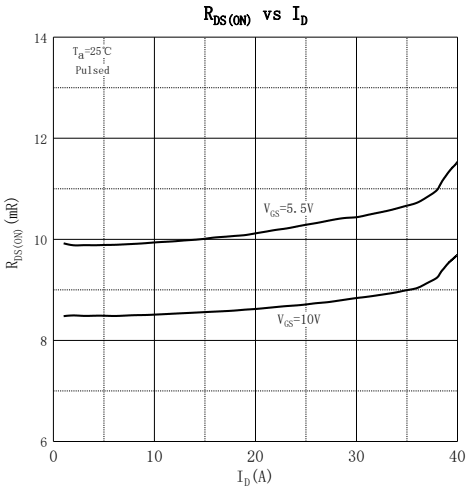
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

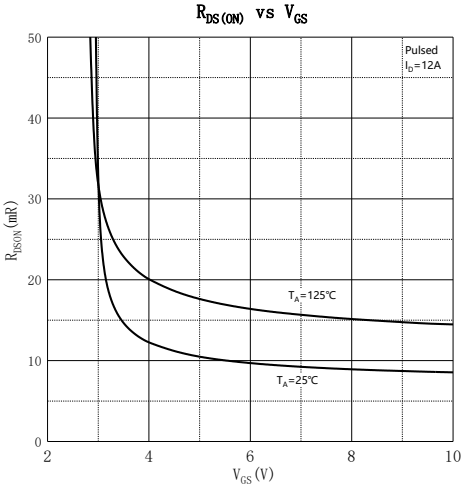
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

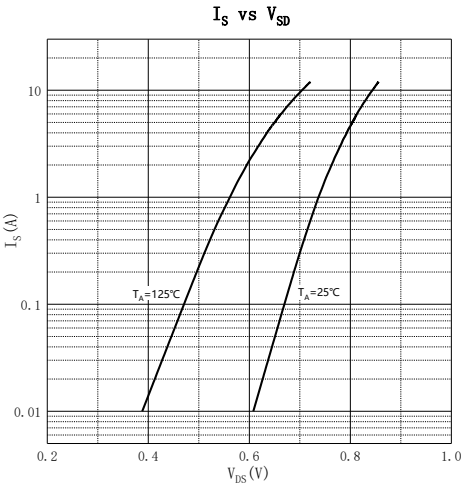
Typical Characteristics

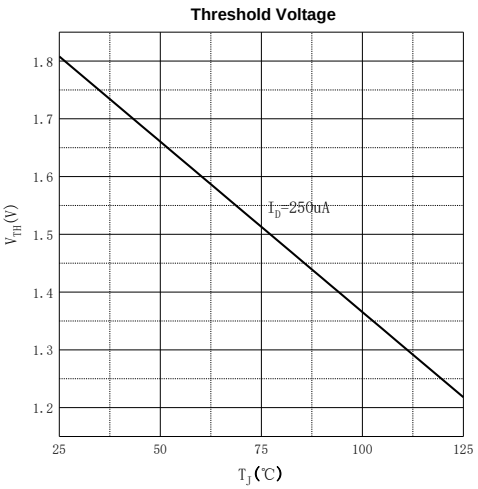




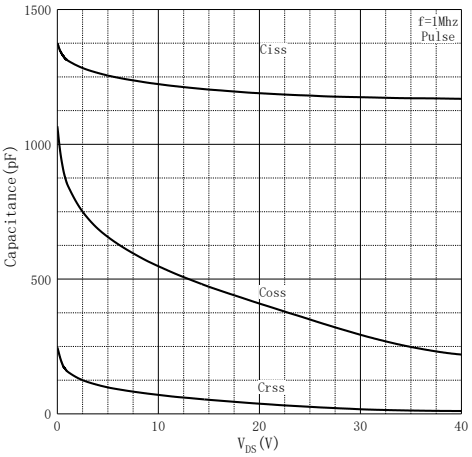




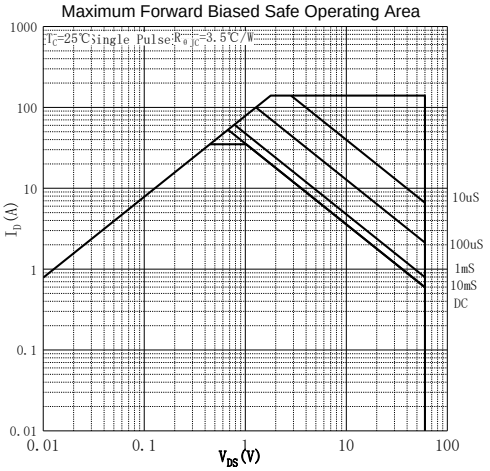




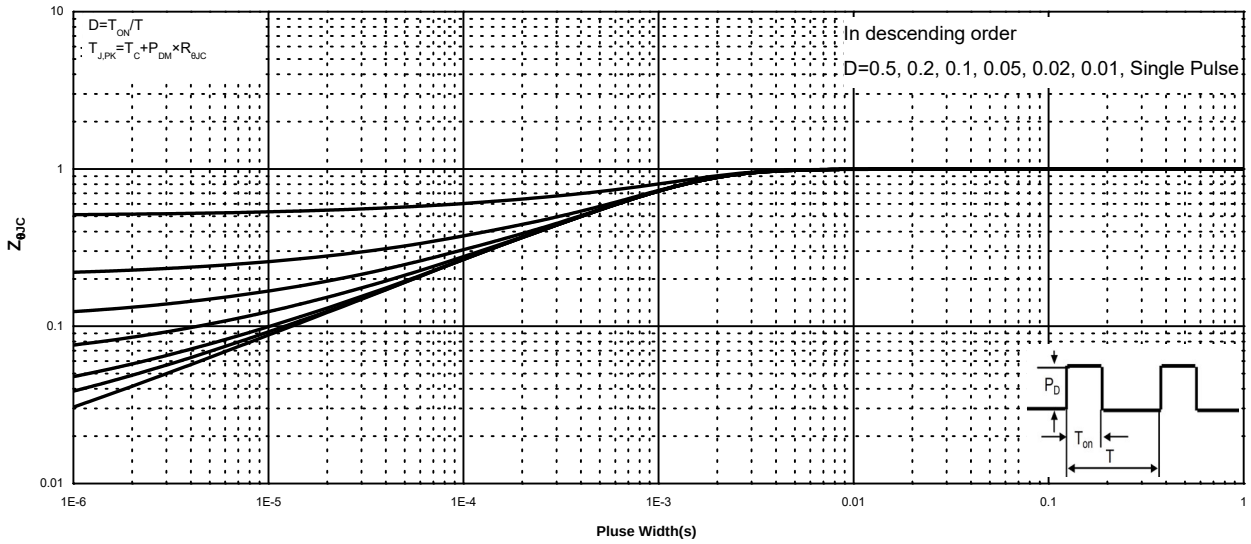
Capacitance vs V_{DS}



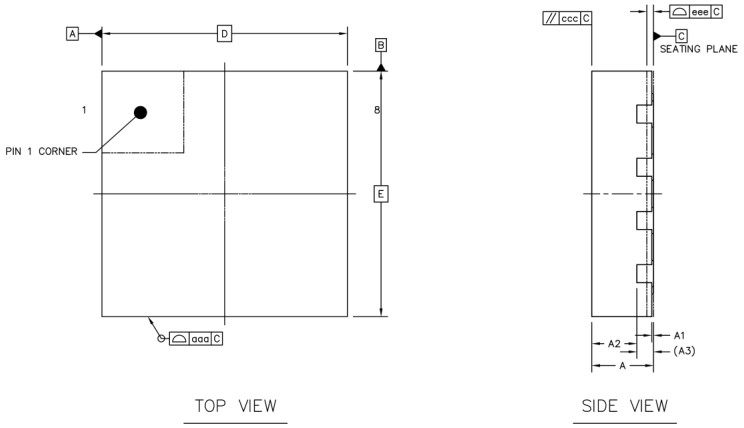
Maximum Forward Biased Safe Operating Area

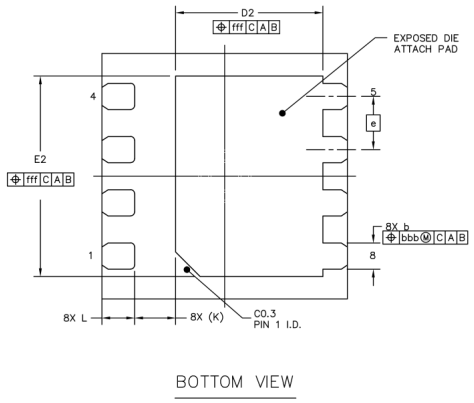


Normalized Maximum Transient Thermal Impedance



DFN3*3-8L Package Information





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.550TYP		0.022TYP	
A3	0.203REF		0.008REF	
b	0.270	0.370	0.011	0.015
D	3.000BSC		0.118BSC	
E	3.000BSC		0.118BSC	
e	0.650BSC		0.026BSC	
D2	1.700	1.900	0.067	0.075
E2	2.350	2.550	0.093	0.100
L	0.300	0.500	0.012	0.020
K	0.500REF		0.020REF	
aaa	0.100TYP		0.004TYP	
ccc	0.100TYP		0.004TYP	
eee	0.080TYP		0.003TYP	
bbb	0.100TYP		0.004TYP	
fff	0.100TYP		0.004TYP	