

Product Summary

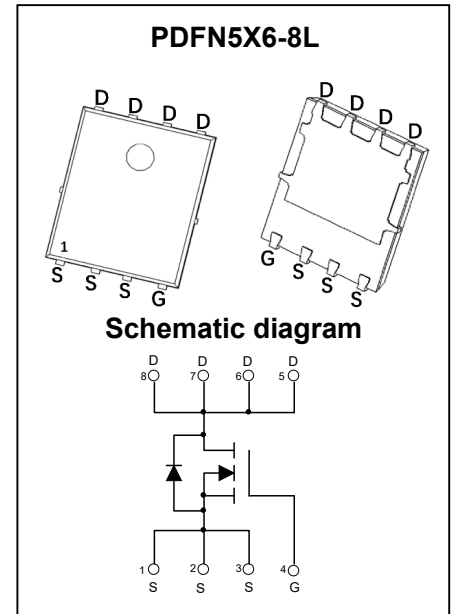
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	0.7mΩ@10V	265A

Feature

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

Application

- Power Switching Application
- Power Management
- Motor Driving



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT007N04NNCU	PDFN5X6-8L	T007N04N	Reel & Tape	330mm	12mm	5000pcs

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit	
Drain - Source Voltage	V_{DS}	40	V	
Gate - Source Voltage	V_{GS}	±20	V	
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	265	A
	$T_C = 100^\circ\text{C}$	I_D	168	A
Pulsed Drain Current ²	I_{DM}	1060	A	
Single Pulsed Avalanche Current ³	I_{AS}	61	A	
Single Pulsed Avalanche Energy ³	E_{AS}	1861	mJ	
Power Dissipation ⁵	$T_C = 25^\circ\text{C}$	P_D	147	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	42	$^\circ\text{C}/\text{W}$	
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.85	$^\circ\text{C}/\text{W}$	
Junction Temperature	T_J	150	$^\circ\text{C}$	
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$	

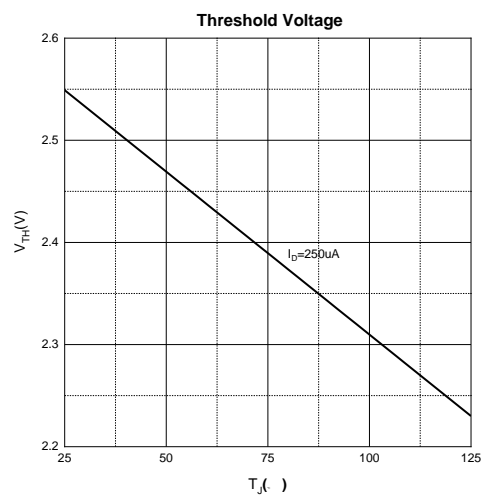
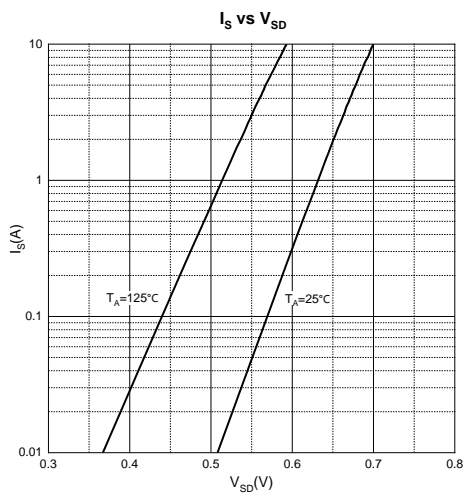
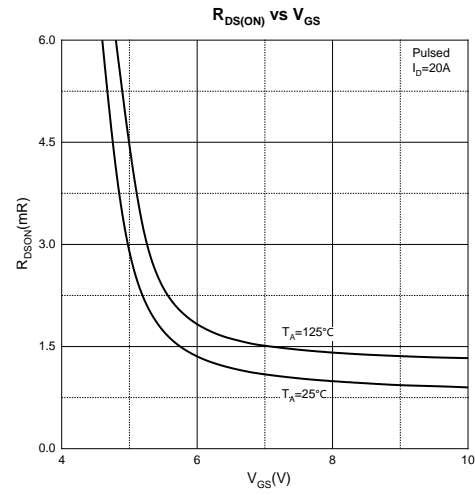
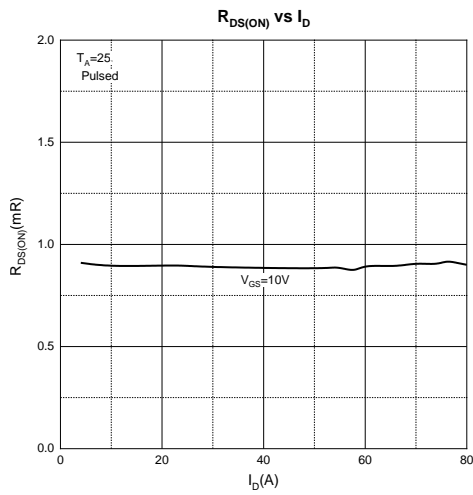
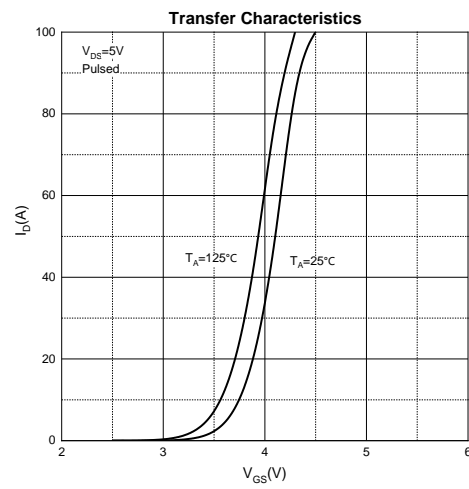
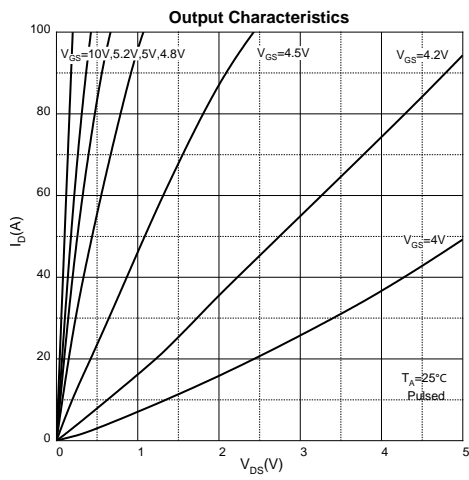
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

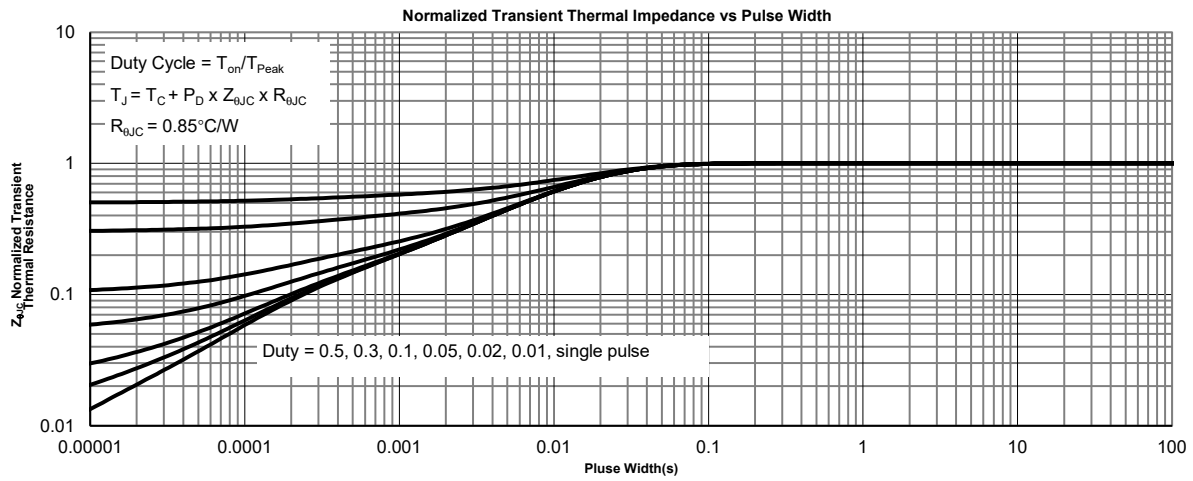
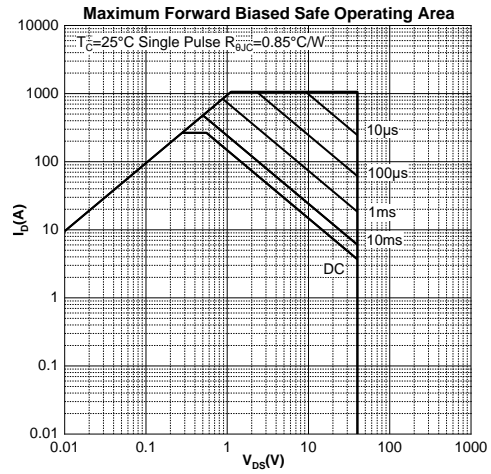
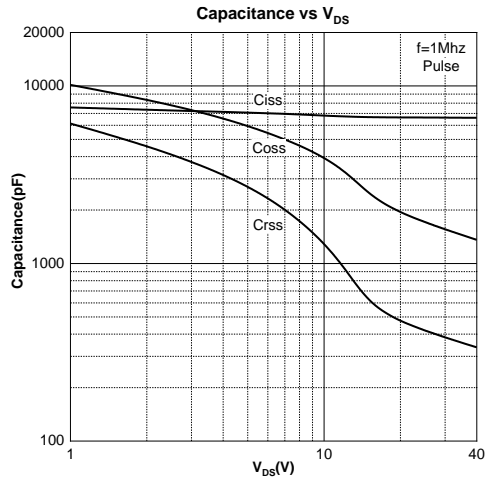
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 38V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	2.6	4	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		0.7	1.1	$m\Omega$
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$		6580		pF
Output Capacitance	C_{oss}			1952		
Reverse Transfer Capacitance	C_{rss}			439		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		4		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 20V, V_{GS} = 10V, I_D = 20A$		149		nC
Gate-source Charge	Q_{gs}			26		
Gate-drain Charge	Q_{gd}			50		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 20V, V_{GS} = 10V, R_L = 1\Omega, R_G = 6\Omega$		28		ns
Turn-on Rise Time	t_r			86		
Turn-off Delay Time	$t_{d(off)}$			61		
Turn-off Fall Time	t_f			92		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

Notes :

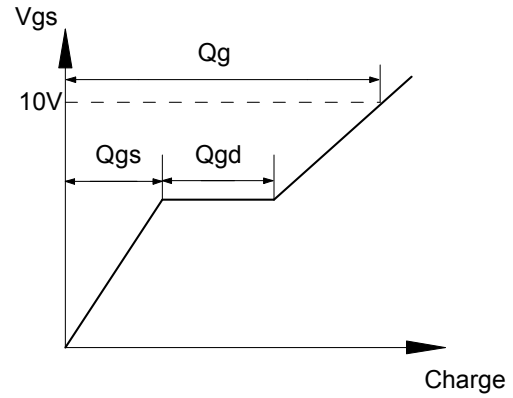
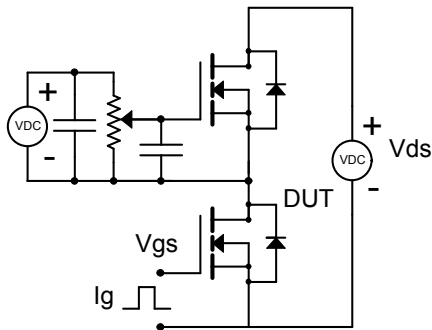
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 1mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.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 $T_A = 25^\circ\text{C}$.

Typical Characteristics

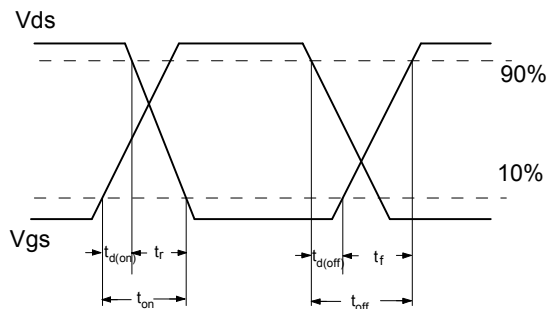
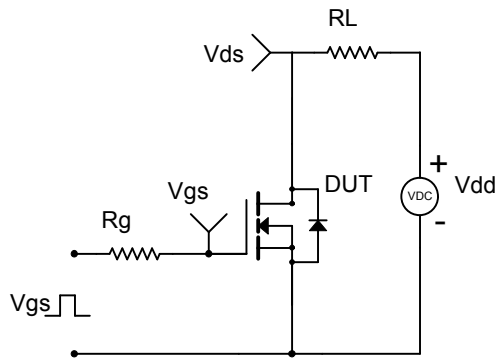




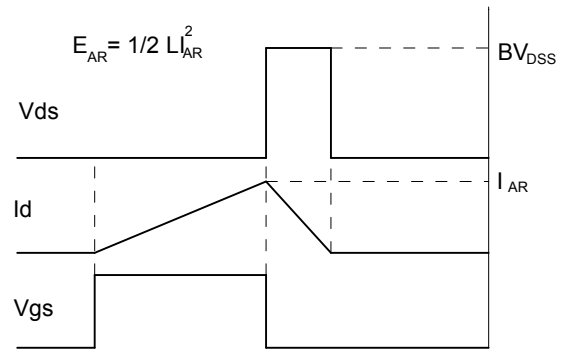
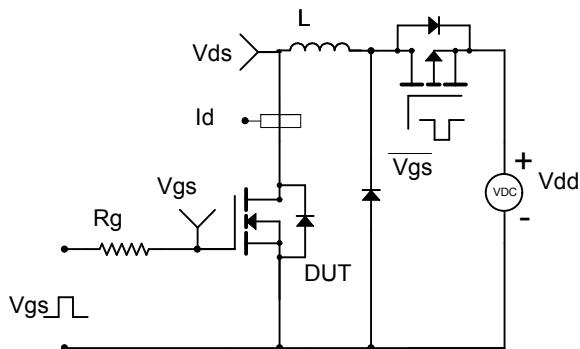
Gate Charge Test Circuit & Waveform



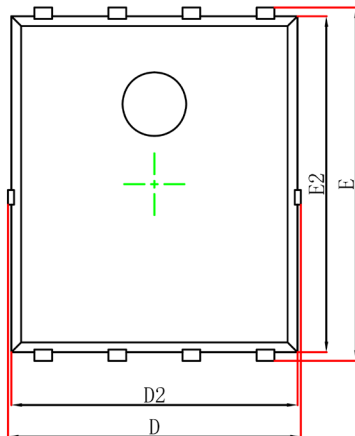
Resistive Switching Test Circuit & Waveform



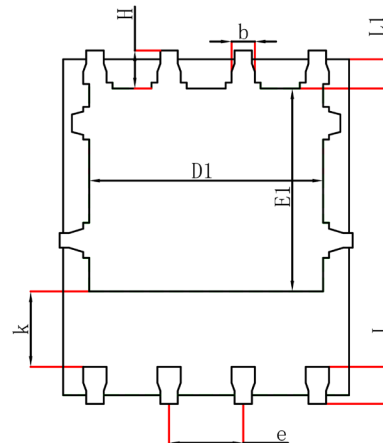
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



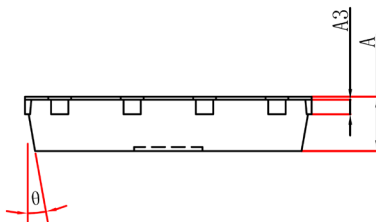
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.10	0.035	0.043
A3	0.254REF		0.010REF	
D	4.700	5.260	0.185	0.207
E	5.750	6.250	0.226	0.246
D1	3.560	4.500	0.140	0.177
E1	3.180	3.660	0.125	0.144
D2	4.700	5.100	0.185	0.201
E2	5.600	6.000	0.220	0.236
k	1.100	-	0.043	-
b	0.300	0.500	0.012	0.020
e	1.270TYP		0.050TYP	
L	0.510	0.710	0.020	0.028
L1	0.424	0.576	0.017	0.023
H	0.510	0.710	0.020	0.028
θ	8°	12°	8°	12°