HIGH DIODE

T105N15NNC

RoHS
COMPLIANT

Pb

150V N-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	11.5mΩ@10V	70A

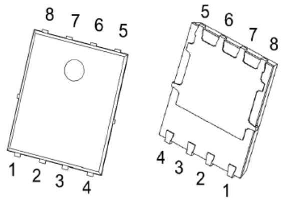
Feature

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

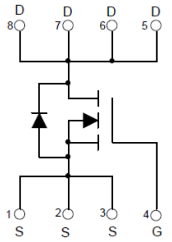
Application

- Power Switching Application
- Hard Switched and High Frequency Circuits
- DC/DC Converter

PDFN5X6-8L



Schematic diagram



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
T105N15NNC	PDFN5X6-8L	T105N15N	Reel & Tape	330mm	12mm	5000pcs

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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	150	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	70	A
	T_C = 100℃	I_D	44	A
Pulsed Drain Current[2]		I_{DM}	280	A
Single Pulsed Avalanche Current[3]		I_{AS}	40	A
Single Pulsed Avalanche Energy[3]		E_{AS}	400	mJ
Power Dissipation[5]	T_C = 25℃	P_D	104	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	60	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	1.2	℃/W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	°C

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	150			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 150V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±150	nA
On Characteristics^4						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	3	4	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		11.5	15	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 75V, V_{GS} = 0V, f = 1MHz		2240		pF
Output Capacitance	C_{oss}			256		
Reverse Transfer Capacitance	C_{rss}			3.2		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		2.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 75V, V_{GS} = 10V, I_D = 20A		31		nC
Gate-source Charge	Q_{gs}			7.3		
Gate-drain Charge	Q_{gd}			7.2		
Gate Plateau Voltage	$V_{plateau}$			4.9		V
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 75V, V_{GS} = 10V, I_D = 35A, R_G = 3Ω		13		ns
Turn-on Rise Time	t_r			4		
Turn-off Delay Time	$t_{d(off)}$			16		
Turn-off Fall Time	t_f			3		
Source - Drain Diode Characteristics						
Diode Forward Voltage^4	V_{SD}	V_{GS} = 0V, I_S = 20A			1.2	V
Diode Continuous Forward Current^1	I_S	T_C = 25℃			70	A
Diode Pulse Forward Current^2	I_{SM}	T_C = 25℃			280	A
Diode Reverse Recovery Time	t_{rr}	I_F = 20A, dI/dt = 100A/μs		90		ns
Diode Reverse Recovery Charge	Q_{rr}	I_F = 20A, dI/dt = 100A/μs		300		nC

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%.

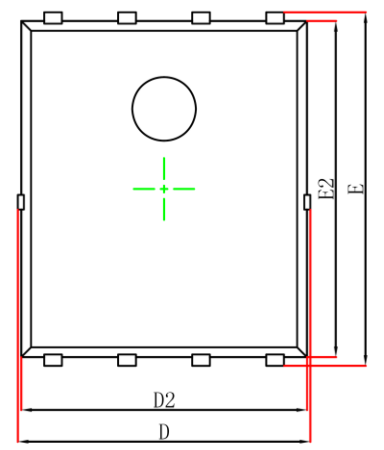
3.E_{AS} condition: V_{DD} = 100V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

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

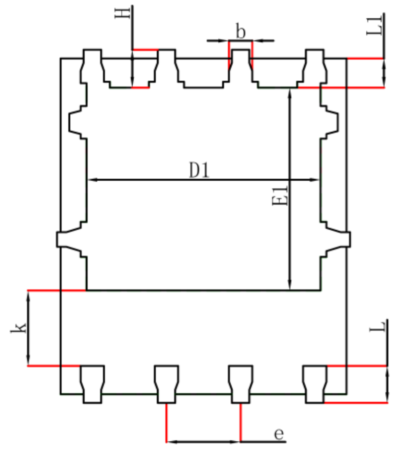
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

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

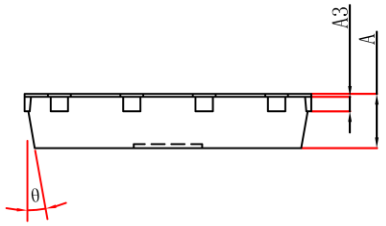
PDFN5X6-8L Package Information



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°