UN0807N5R5-PD56

ROHS

N-Channel Enhancement Mode MOSFET

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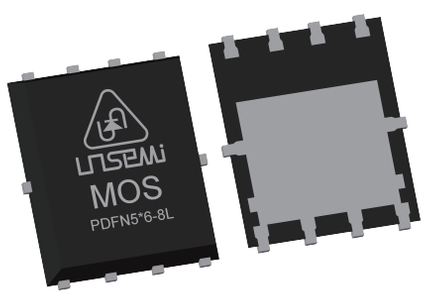
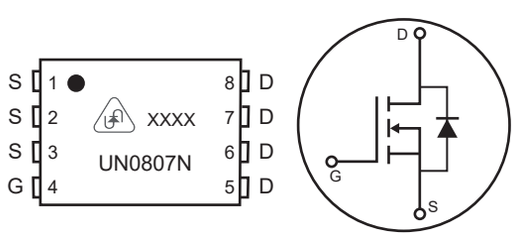
Product Summary

V_{DS}	80V
I_D(Tc=25℃)	73A
$R_{DS(ON)}$(@V_{GS}=10V I_D=18A)	≤6.5mΩ
$R_{DS(ON)}$(@V_{GS}=6.0V I_D=10A)	≤8.5mΩ

PDFN5*6-8L





Features

- ◆ 100% Avalanche Tested
- ◆ Reliable and Rugged
- ◆ RoHS Complian

Applications

- ◆ DC/DC Converter
- ◆ Battery Management System
- ◆ High Power Inverter System
- ◆ Industrial and Motor Drive Applications

Package Marking And Ordering information

Part Number	Package Type	Packaging	Reel(pcs)
UN0807N5R5-PD56	PDFN5x6-8L	Tape & Reel	5,000

Absolute Maximum Ratings Tc = 25℃ unless otherwise specified

Parameter		Symbol	Max.	Units
Drain-Source Voltage		V_{DS}	80	V
Continuous Drain Current [1]	@Tc=25℃	I_D	60	A
	@Tc=100℃		46	
Pulsed Drain Current [2]		I_{DM}	292	A
Drain Current of Silicon Wafer [3]		I_{DSW}	73	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation	@Tc=25℃	P_D	62.5	W
	@Tc=100℃		25	
Single Pulse Avalanche Energy [4]		E_{AS}	235	mJ
Junction and Storage Temperature Range		T_J,Tstg	-55~+150	℃

Thermal Characteristics

Parameter		Symbol	Typ.	Max.	Units
Junction-to-Ambient Thermal Resistance	Steady State	$R_{\theta JA}$	-	62	℃/W
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	-	2.0	℃/W

Notes:

1).The maximum current rating is package limited.

2).Single pulse width limited by junction temperature .

3).The maximum current rating is silicon wafer limited.

4).Limited by $T_{J(MAX)}$, starting T_J=25℃ , Rg=25Ω, L=0.5mH.

5).Design parameters,Guaranteed by design, not subject to production.

Electrical Characteristics at Tc = 25℃ unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V , I_D = 250μA	80			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} = 80V , V_{GS} = 0V			1.0	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±20V , V_{DS} = 0V			±100	nA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} = V_{GS} , I_D = 250μA	2.3		3.7	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} = 10V , I_D = 18A		5.4	6.5	mΩ
		V_{GS} = 6.0V , I_D = 10A		6.5	8.5	
Forward Transconductance	gfs	V_{DS} = 5.0V , I_D = 20A		34		S
BODY-DIODE PARAMETERS						
Drain-Source Diode	V_{SD}	I_S = 3.0A , V_{GS} = 0V		0.8	1.2	V
Reverse Recovery Time	trr	I_F = 20A di/dt = 500A/μs		43.7		nS
Reverse Recovery Charge	Qrr			67.5		nC
DYNAMIC PARAMETERS [5]						
Gate Resistance	R_G	F = 1MHz		2.8		Ω
Input Capacitance	Ciss	V_{GS} = 0V V_{DS} = 40V F = 1.0MHz		2886		pF
Output Capacitance	Coss			978		pF
Reverse Transfer Capacitance	Crss			86		pF
Gate Charge Total	Qg	I_D = 20A V_{DS} = 40V V_{GS} = 10V		13.8		nC
Gate to Source Charge	Qgs			17.0		nC
Gate to Drain Charge	Qgd			51.7		nC
SWITCHING PARAMETERS [5]						
Turn-On Delay Time	$td_{(ON)}$	V_{DS} = 40V V_{GS} =10V R_G = 3.0Ω R_L = 2.5Ω		16.8		nS
Turn-On Rise Time	tr			89.3		nS
Turn-Off Delay Time	$td_{(OFF)}$			32.4		nS
Turn-Off Fall Time	tf			86.1		nS

Electrical Characteristics Curves

Fig 1. Output Characteristics

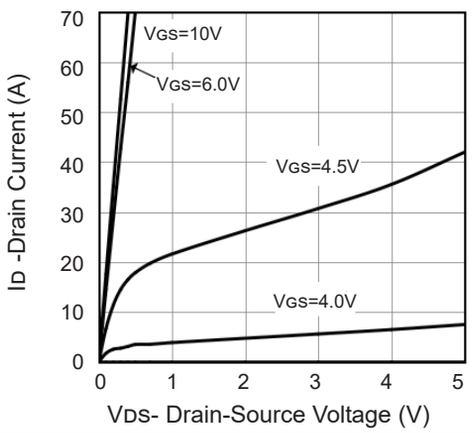


Fig 2. Typical Tansfer Characeristic

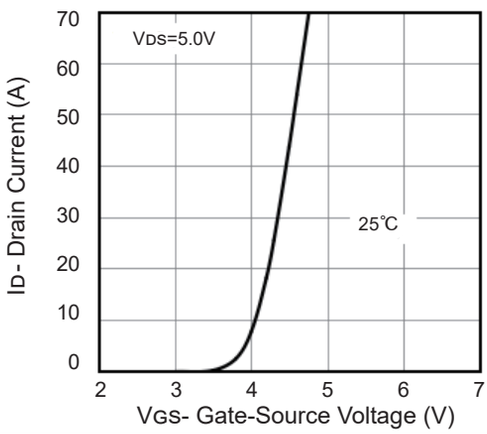


Fig 3. On-Resistance Vs Drain Current

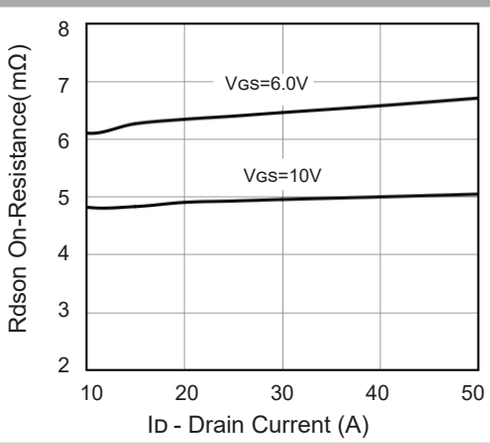


Fig 4. On-Resistance Vs JunctionTemperature

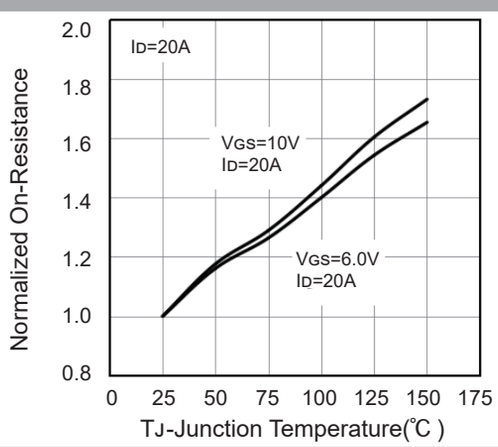


Fig 5. On-Resistance Vs Gate-Source Voltage

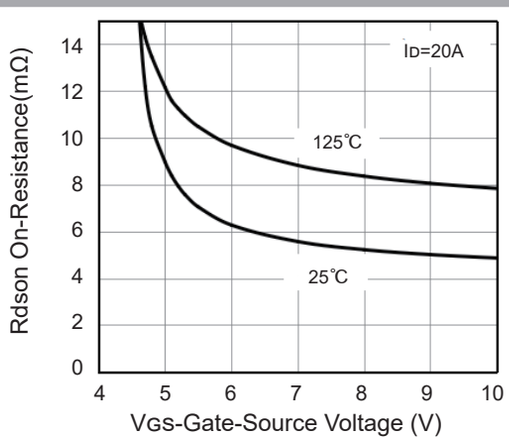
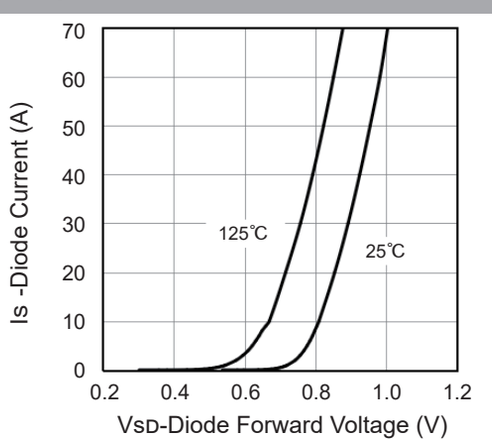


Fig 6. Body-Diode Characteristics



Electrical Characteristics Curves

Fig 7. Capacitance Vs Drain-Source Voltage

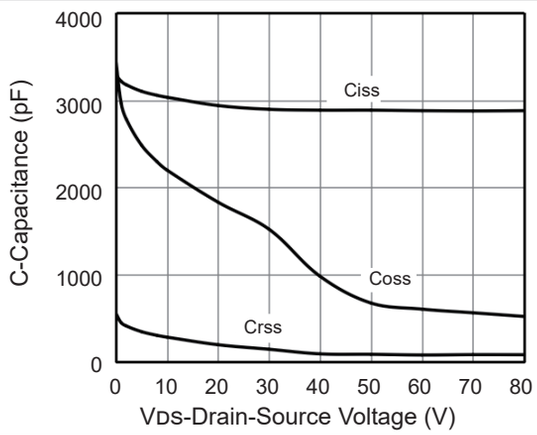


Fig 8. Safe Operation Area

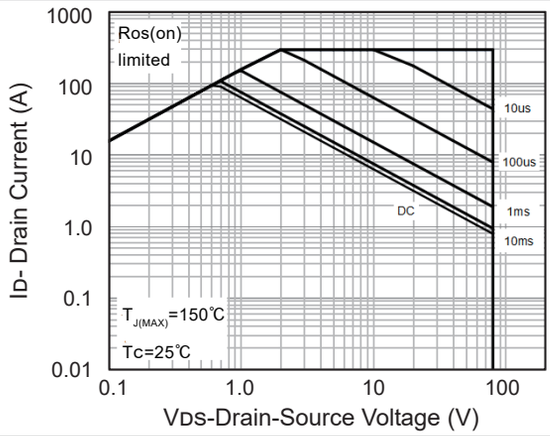


Fig 9. Power Derating

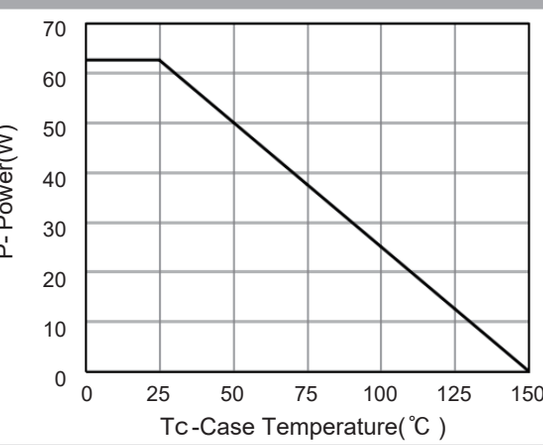


Fig 10. Drain Current Vs CaseTemperature

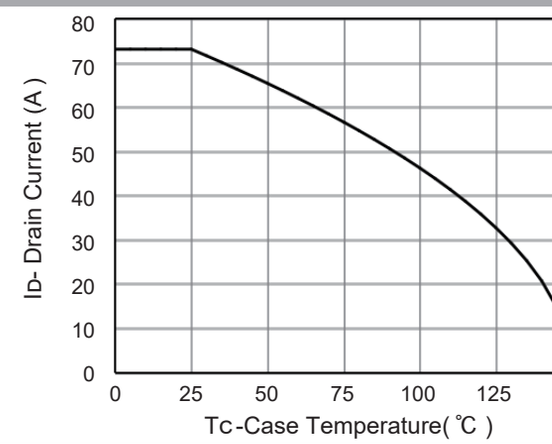
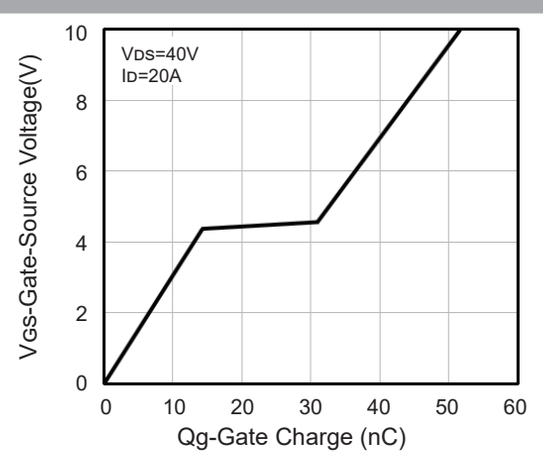
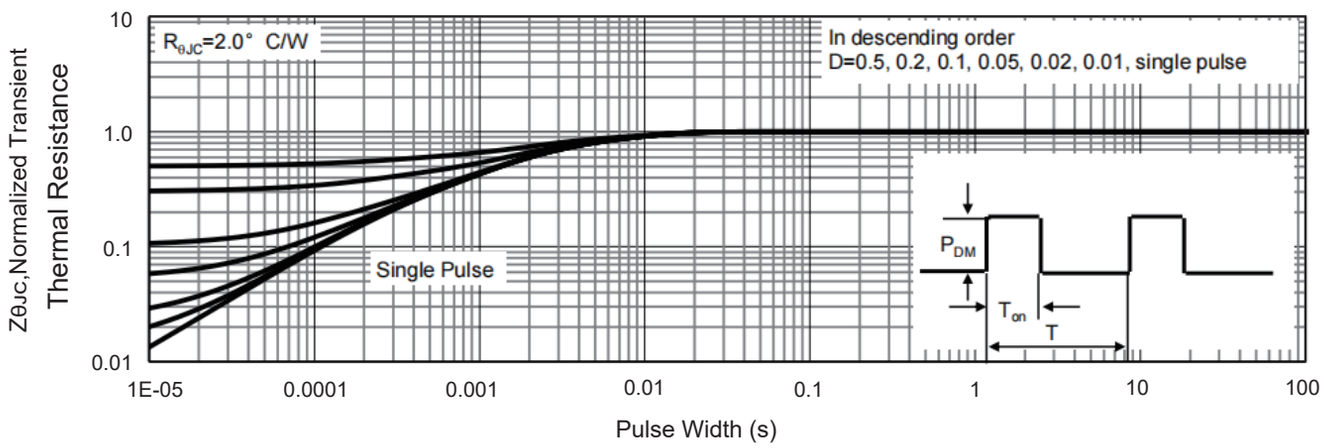


Fig 11. Gate Charge Characteristics



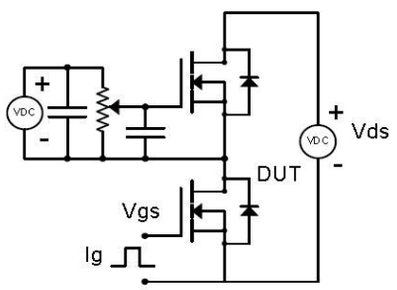
Electrical Characteristics Curves

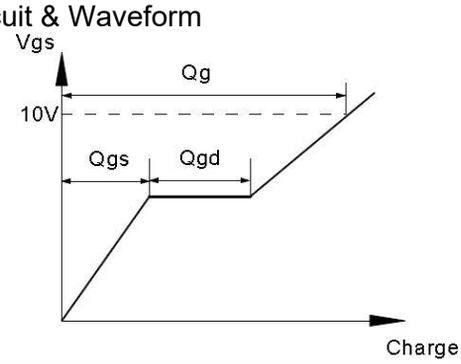
Fig 12. Safe Normalized Maximum Transient Thermal Impedance



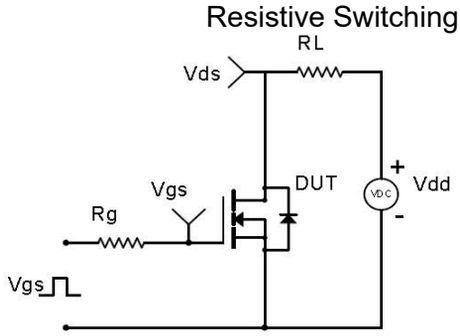
Test Circuit

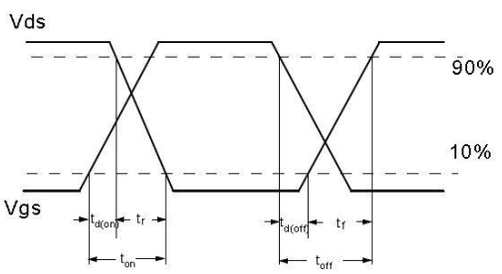
Gate Charge Test Circuit & Waveform



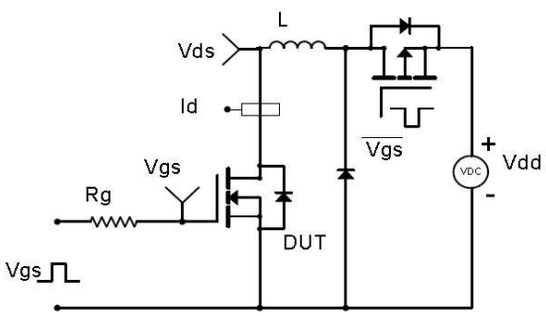


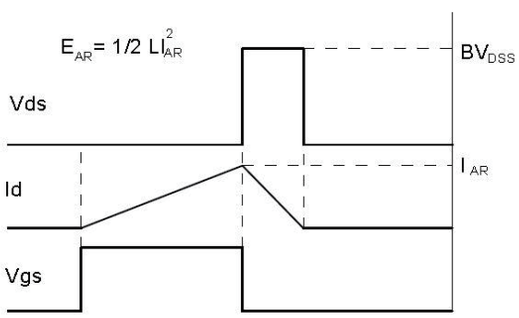
Resistive Switching Test Circuit & Wav eforms



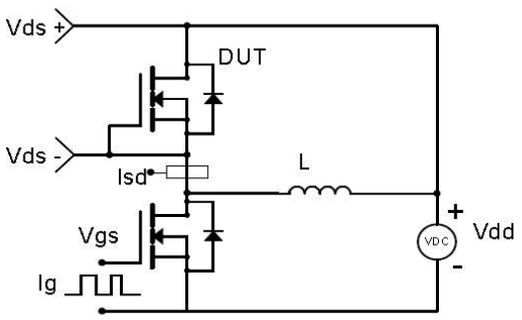


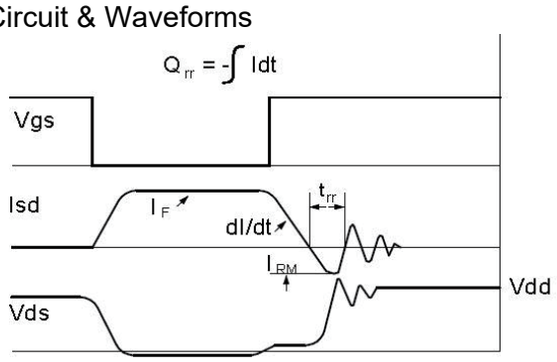
Unclamped Inductive Switching (UIS) T est Circuit & Waveforms





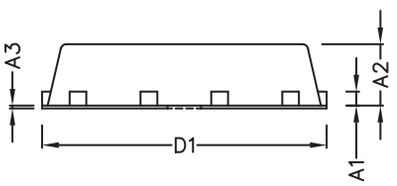
Diode Recovery Test Circuit & Waveforms



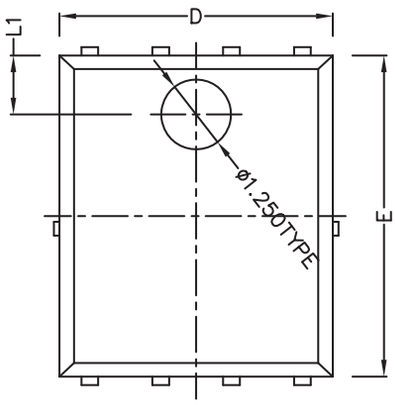


PDFN5*6-8L Package Outline & Dimensions (Units: mm / in)

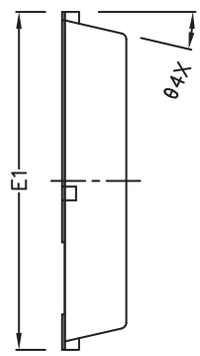
PDFN5*6-8L



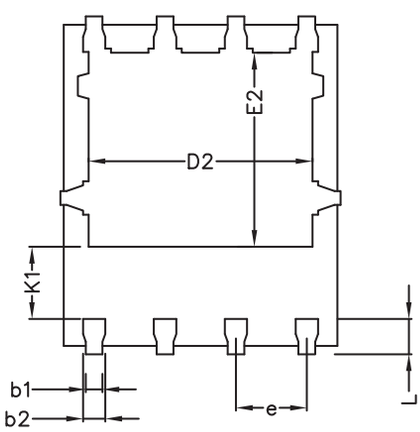
SIDE VIEW



TOP VIEW



SIDE VIEW



BOTTOM VIEW
OPTION 1

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A1	(0.254 BSC)		(0.0100 BSC)	
A2	1.000	1.100	0.0394	0.0433
A3	0.005	-	0.0001	-
b1	0.250	0.300	0.0098	0.0118
b2	0.350	0.400	0.0138	0.0157
D	4.800	4.900	0.1890	0.1929
D1	5.000	5.100	0.1969	0.2008
D2	3.910	4.010	0.1539	0.1579
E	5.650	5.750	0.2224	0.2263
E1	5.950	6.050	0.2342	0.2381
E2	3.375	3.475	0.1329	0.1368
e	(1.270 TYPE)		(0.0500 TYPE)	
L	0.530	0.630	0.0209	0.0248
L1	1.00 REF		0.0394 REF	
θ	13° TYPE		13° TYPE	
K1	1.235 REF		0.0486 REF	

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