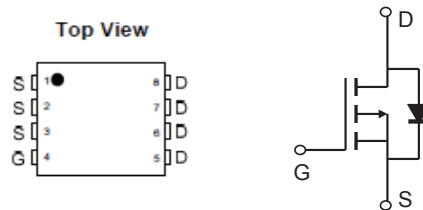
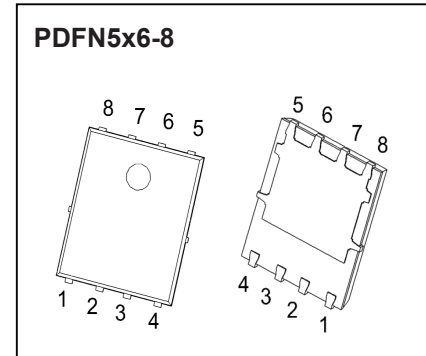


■ Features

- V_{DS} -60 V
- I_D (at $V_{GS}=-10V$) -80 A
- $R_{DS(ON),TYP}$ (at $V_{GS} = -10V$) = 7.2 m Ω
- $R_{DS(ON),TYP}$ (at $V_{GS} = -4.5V$) = 8.6 m Ω
- P-Channel, -5V Logic Level Control
- Very low on-resistance $R_{DS(on)}$
- Fast Switching
- Enhancement mode
- 100% Avalanche Tested



■ Absolute Maximum Ratings ($T_c = 25^\circ C$ unless otherwise noted.)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	-60	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_c=25^\circ C$	-80	A
		$T_c=100^\circ C$	-51	
Pulsed Drain Current (Note 1)	I_{DM}	-300		
Single Pulsed Avalanche Energy (Note 2)	E_{AS}	56	mJ	
Power Dissipation	P_D	115	W	
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	48	$^\circ C/W$	
Thermal Resistance, Junction- to-Case	$R_{\theta JC}$	1.3		
Operating Junction and Storage Temperature	T_J, T_{stg}	-55 to 175	$^\circ C$	

Notes:

1. Repetitive rating; pulse width limited by max. junction temperature.
2. Limited by T_{Jmax} , starting $T_J = 25^\circ C$, $L = 0.5mH, R_G = 25\Omega, I_{AS} = -15A, V_{GS} = -10V$.

■ Electrical Characteristics (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = -250μA, V _{GS} = 0V	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -60V, V _{GS} = 0V			-1	μA
		V _{DS} = -60V, V _{GS} = 0V, T _J = 125°C			-100	
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -20A		7.2	9.4	mΩ
		V _{GS} = -4.5V, I _D = -10A		8.6	11.4	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -30V, f = 1MHz		6985		pF
Output Capacitance	C _{oss}			450		
Reverse Transfer Capacitance	C _{rss}			290		
Gate Resistance	R _g	f = 1MHz		13.8		Ω
Total Gate Charge	Q _g	V _{DS} = -30V, I _D = -20A, V _{GS} = -10V		94		nC
Gate Source Charge	Q _{gs}			21		
Gate Drain Charge	Q _{gd}			25		
SWITCHING CHARACTERISTICS (Note 4)						
Turn-On Delay Time	t _{d(on)}	V _{DD} = -30V, I _D = -5A, R _G = 6.8Ω, V _{GS} = -10V		19		ns
Turn-On Rise Time	t _r			26		
Turn-Off Delay Time	t _{d(off)}			89		
Turn-Off Fall Time	t _f			45		
DRAIN-SOURCE DIODE CHARACTERISTICS						
Reverse Recovery Time	t _{rr}	I _{SD} = -20A, V _{GS} = 0V,		35		ns
Reverse Recovery Charge	Q _{rr}	di/dt = -500A/μs		175		nC
Diode Forward Voltage	V _{SD}	I _{SD} = -35A, V _{GS} = 0V		-0.88	-1.3	V

Notes:

- Pulse Test: pulse width ≤ 300 μs, duty cycle ≤ 2%.
- Switching characteristics are independent of operating junction temperatures.

■ Typical Characteristics

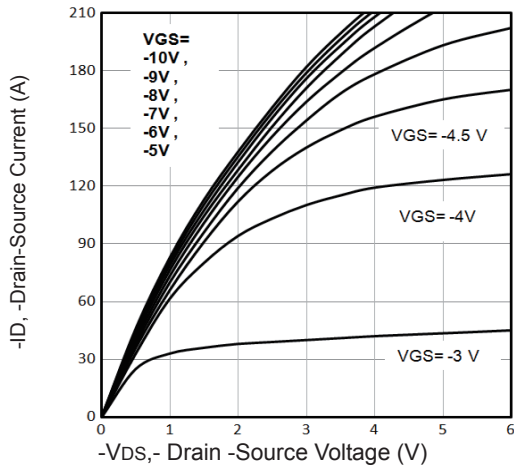


Fig1. Typical Output Characteristics

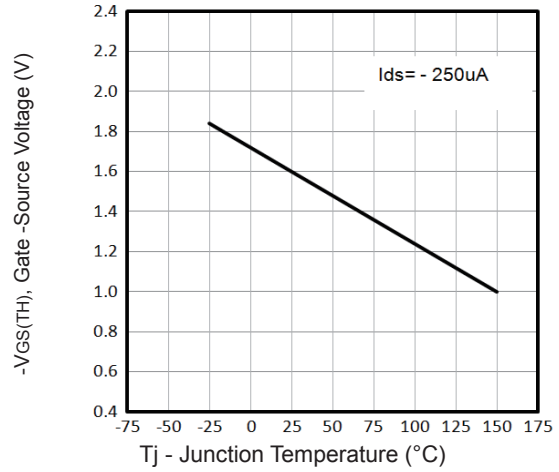


Fig2. Threshold Voltage Vs. Temperature

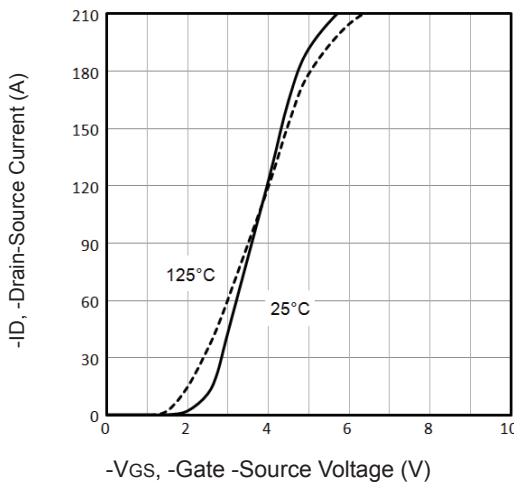


Fig3. Typical Transfer Characteristics

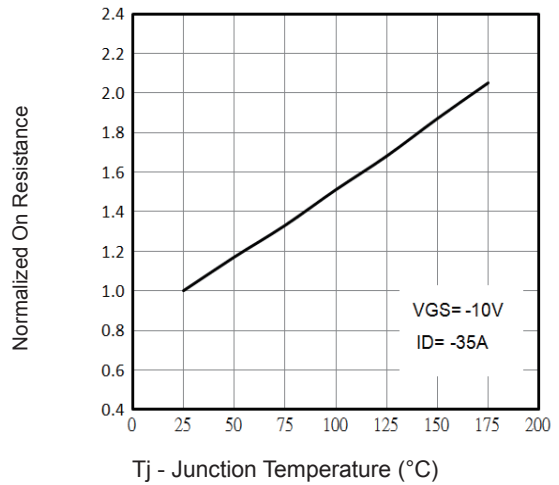


Fig4. Normalized On-Resistance Vs. Temperature

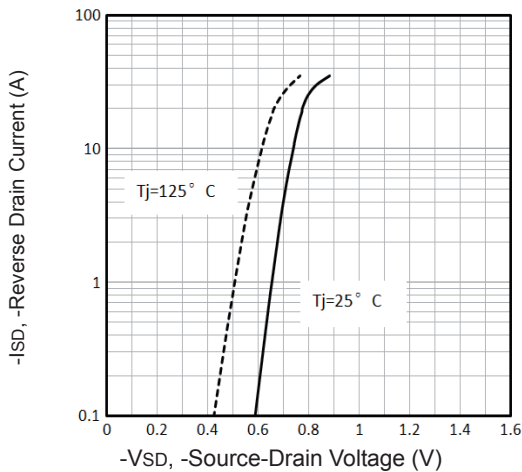


Fig5. Typical Source-Drain Diode Forward Voltage

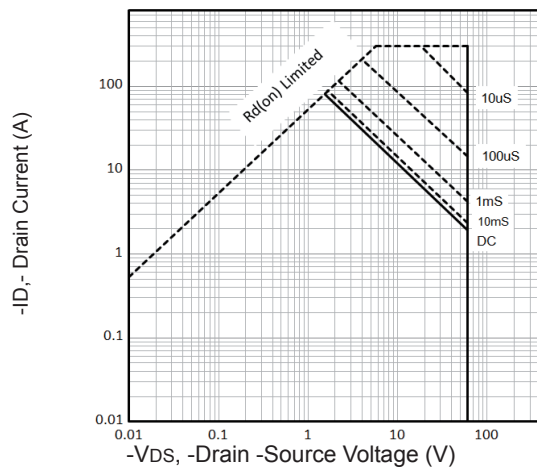


Fig6. Maximum Safe Operating Area

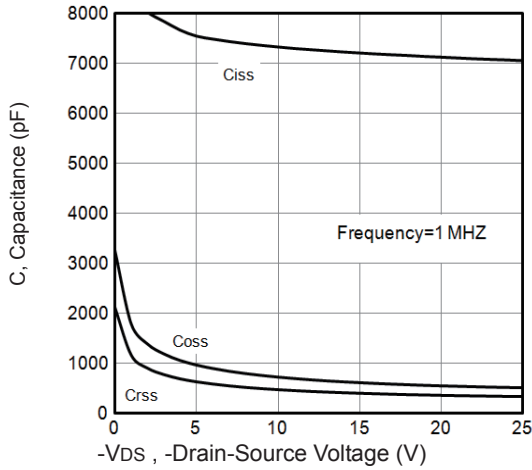


Fig7. Typical Capacitance Vs.Drain-Source Voltage

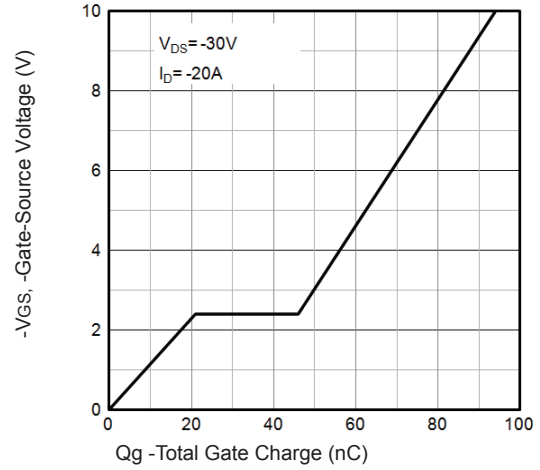


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

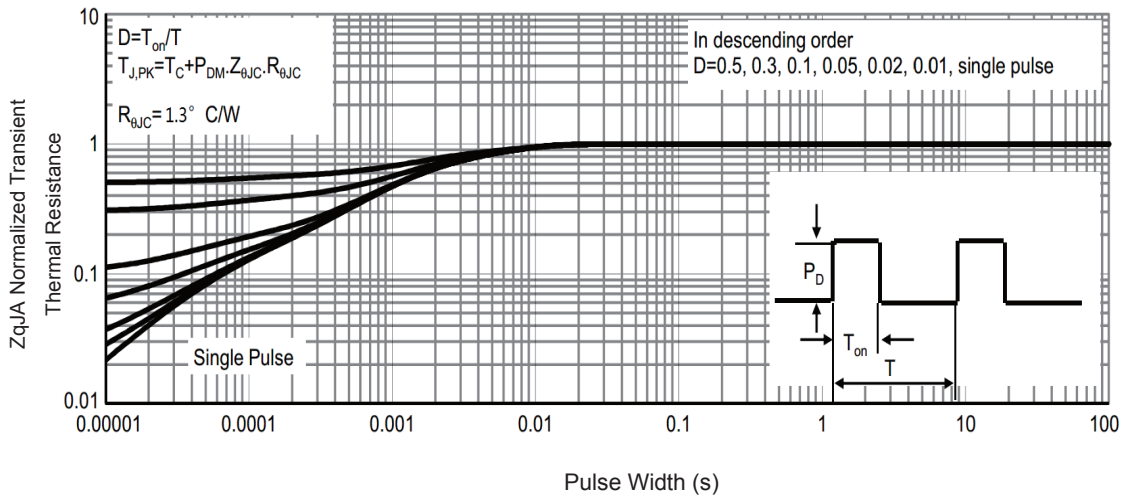


Fig9. Normalized Maximum Transient Thermal Impedance Tj - Junction

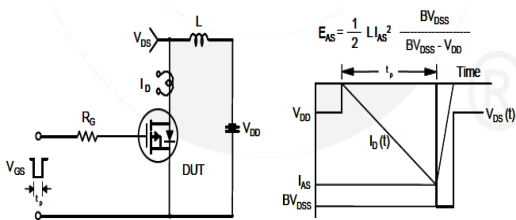


Fig10. Unclamped Inductive Test Circuit and Waveforms

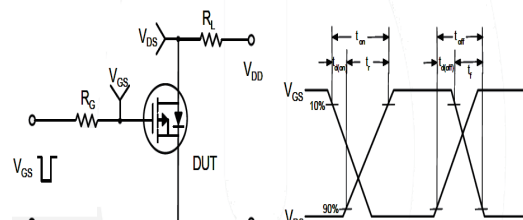
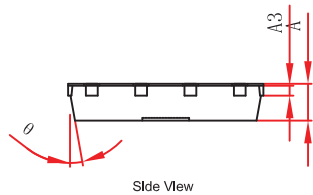
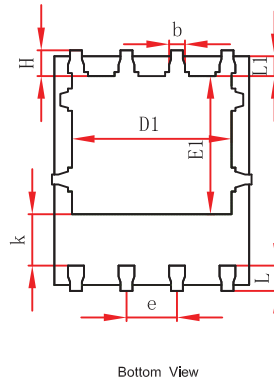
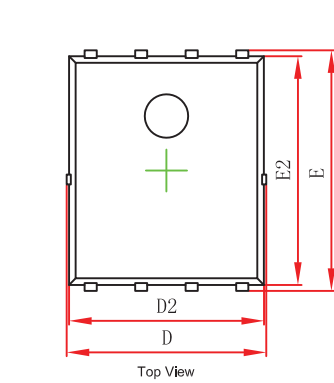


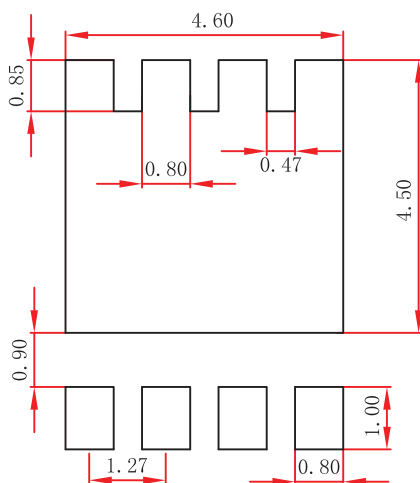
Fig11. Switching Time Test Circuit and waveforms

PDFN5x6-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

PDFN5x6-8 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.