

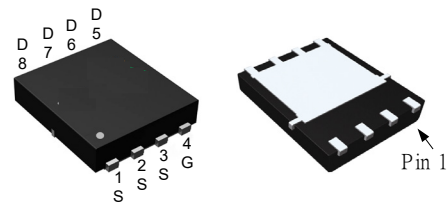
Features

- 85V/100A*
 $R_{DS(ON)} = 3.3m\Omega (typ.) @ V_{GS} = 10V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)
- Moisture Sensitivity Level MSL1
 (per JEDEC J-STD-020D)

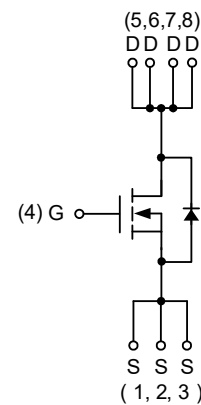
Applications

- Synchronous Rectification for Flyback Converters.
- Charger for Mobile Devices.
- Motor drivers.

Pin Description



PDFN5*6-8L



N-Channel MOSFET

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		85	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	
I _S	Diode Continuous Forward Current	T _C =25°C	74	A
I _D	Continuous Drain Current	T _C =25°C	100*	A
		T _C =100°C	100*	
I _{DM}	Pulsed Drain Current	T _C =25°C	400 ^a	
P _D	Maximum Power Dissipation	T _C =25°C	214	W
		T _C =100°C	107	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	0.7	°C/W
P _D	Maximum Power Dissipation	T _A =25°C	2.72	W
		T _A =70°C	1.91	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	Steady State	55	°C/W
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	34	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	289	mJ

Note * : Current limited by bonding wire.

Note a : Pulse width limited by maximum junction temperature.

Note b : Surface mounted on 1in² pad area.

Note c : UIS tested and pulse width limited by maximum junction temperature (initial temperature $T_J=25^{\circ}\text{C}$).

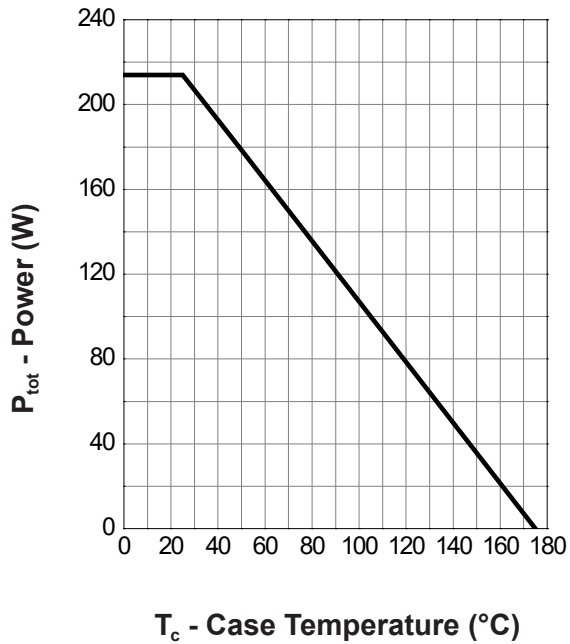
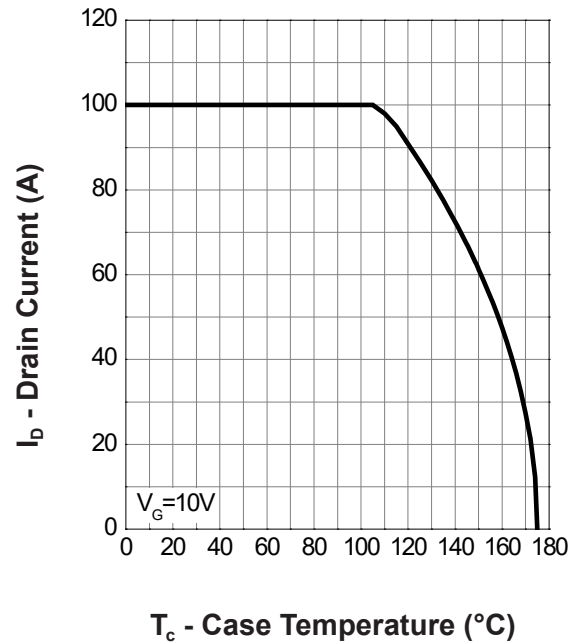
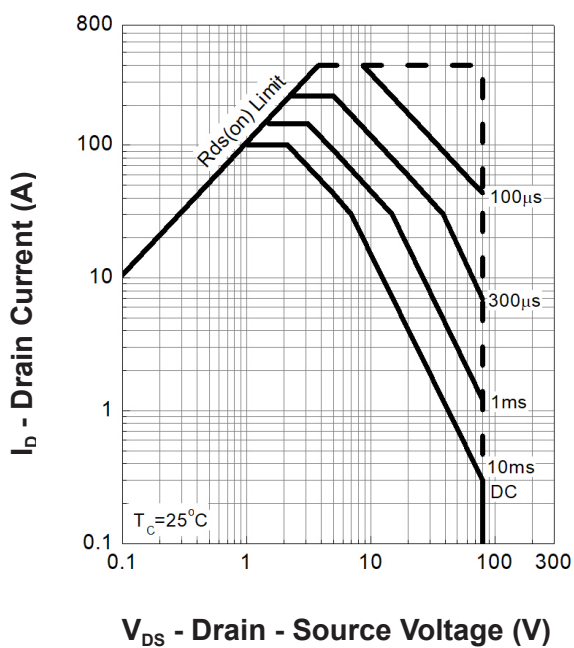
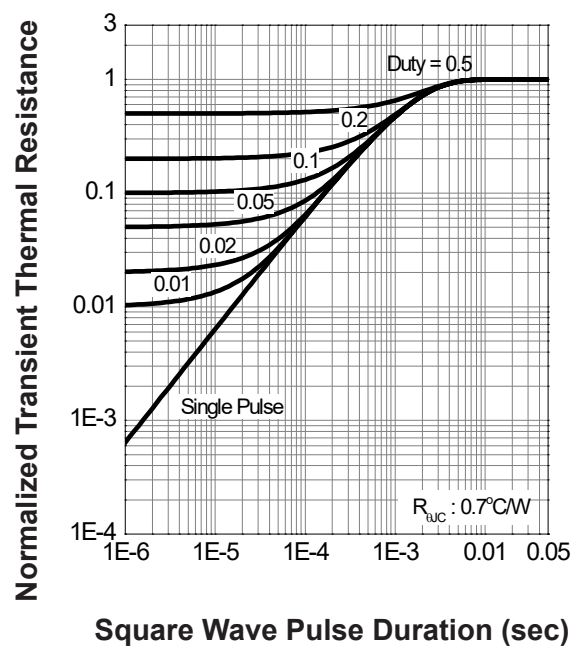
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	85	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =64V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =50A	-	3.3	4.0	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =50A, V _{GS} =0V	-	0.85	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =50A, dI _{SD} /dt=100A/μs	-	53	-	ns
Q _{rr}	Reverse Recovery Charge		-	101	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =40V, Frequency=1.0MHz	-	4290	5580	pF
C _{oss}	Output Capacitance		-	600	-	
C _{rss}	Reverse Transfer Capacitance		-	100	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	28	50	ns
t _r	Turn-on Rise Time		-	11	20	
t _{d(OFF)}	Turn-off Delay Time		-	60	108	
t _f	Turn-off Fall Time		-	95	171	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =40V, V _{GS} =10V, I _{DS} =50A	-	58	87	nC
Q _{gs}	Gate-Source Charge		-	23	-	
Q _{gd}	Gate-Drain Charge		-	8	-	

Note d : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

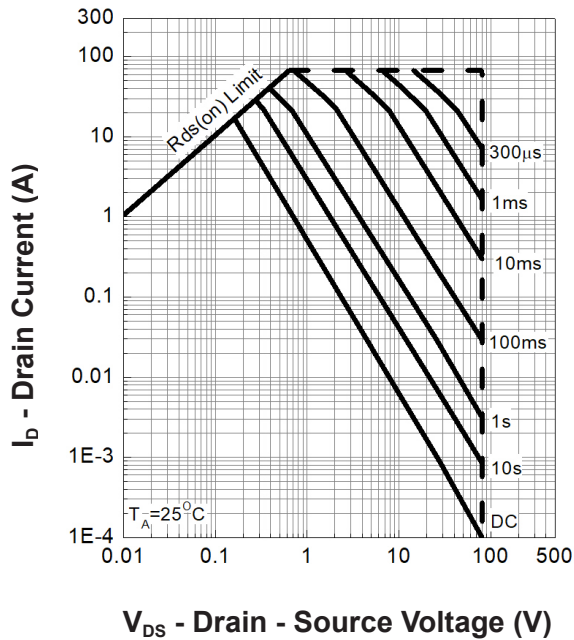
Note e : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

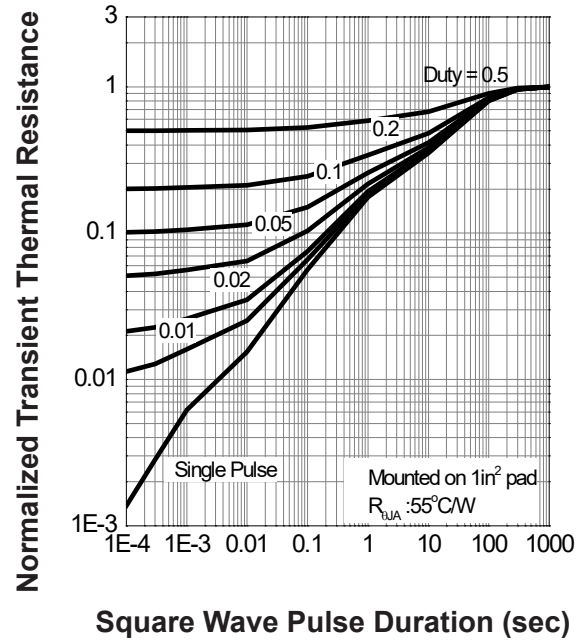
Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


Typical Operating Characteristics(Cont.)

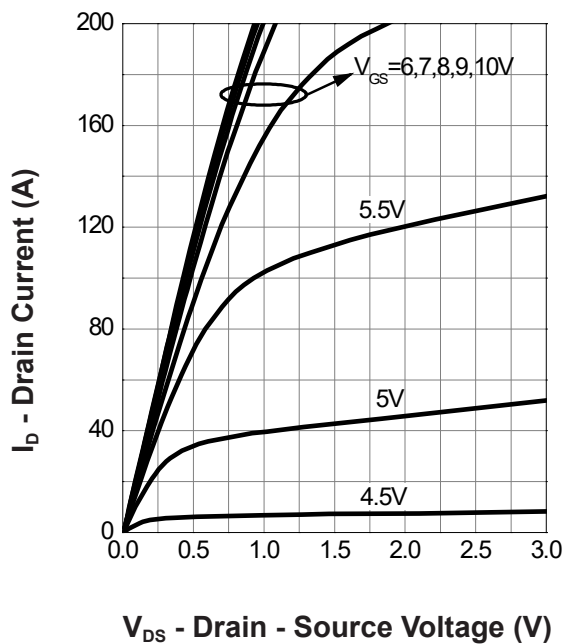
Safe Operation Area



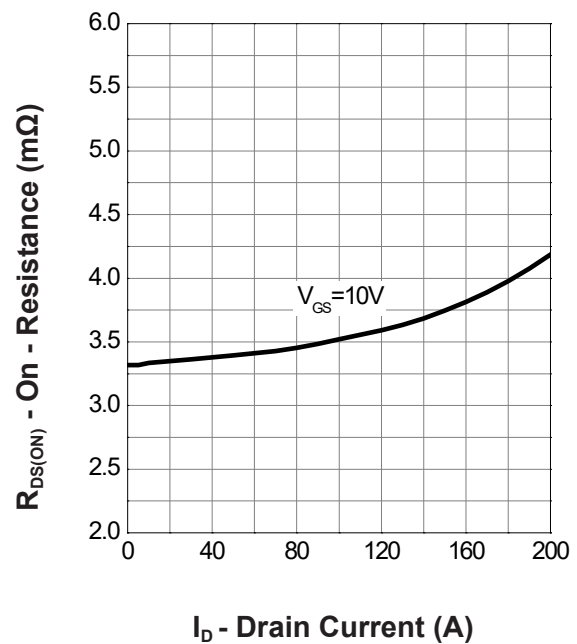
Thermal Transient Impedance



Output Characteristics

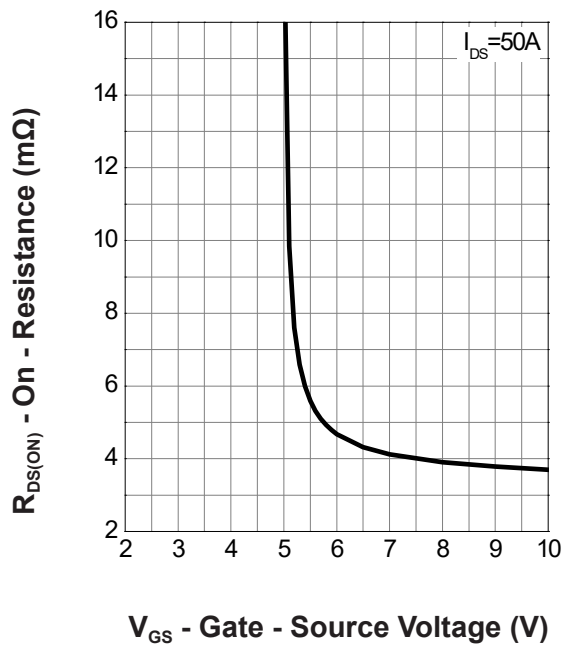


Drain-Source On Resistance

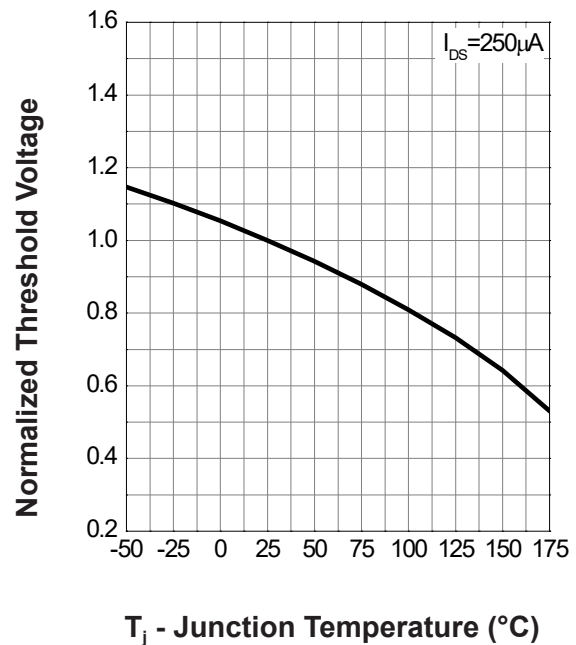


Typical Operating Characteristics(Cont.)

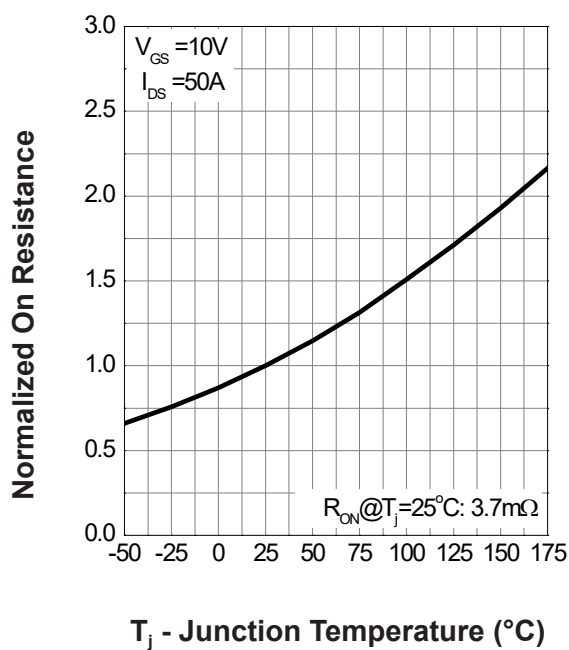
Gate-Source On Resistance



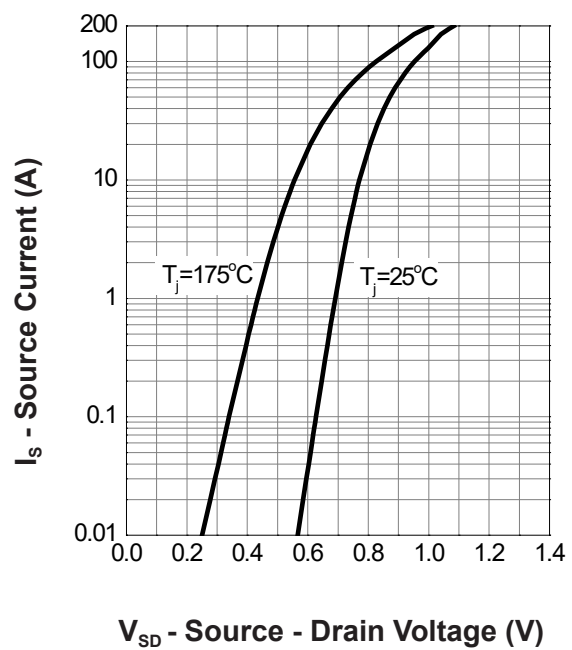
Gate Threshold Voltage



Drain-Source On Resistance

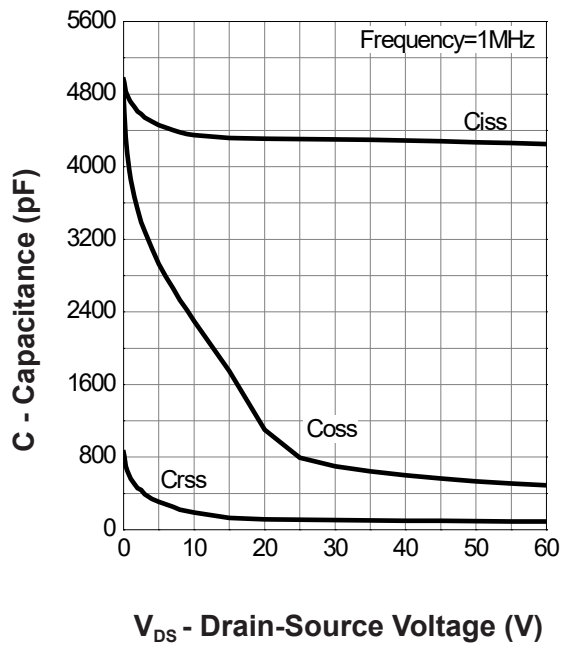


Source-Drain Diode Forward

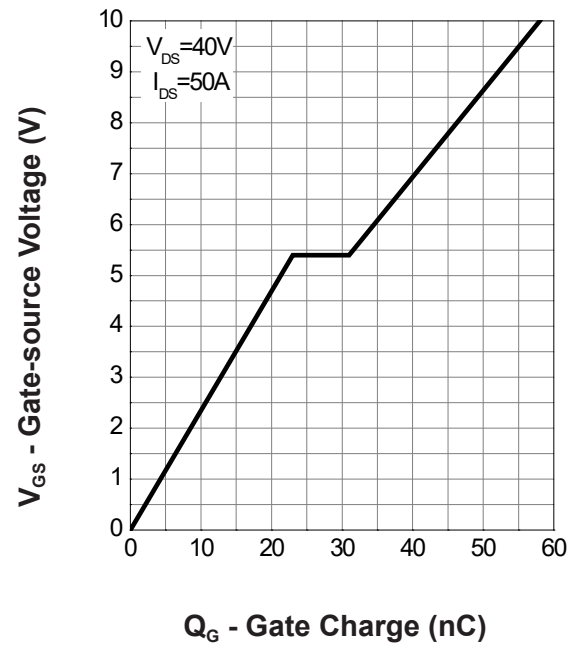


Typical Operating Characteristics(Cont.)

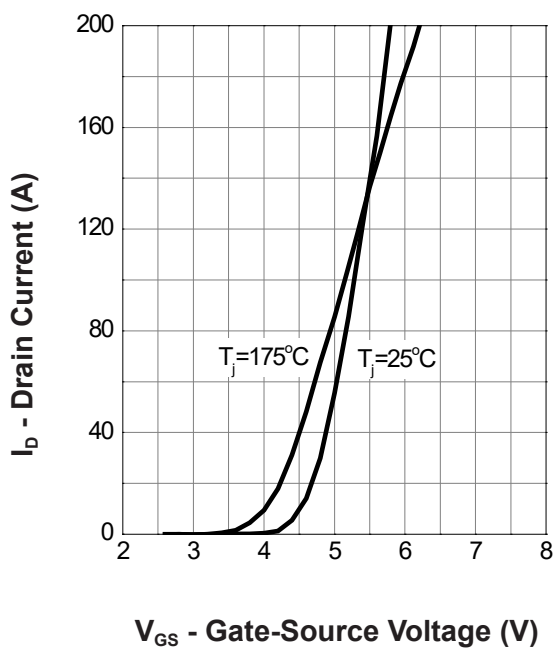
Capacitance



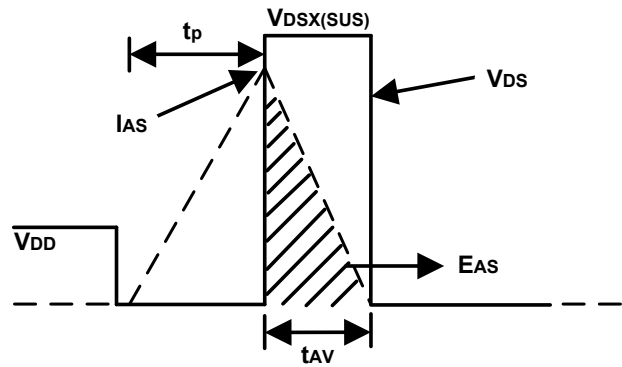
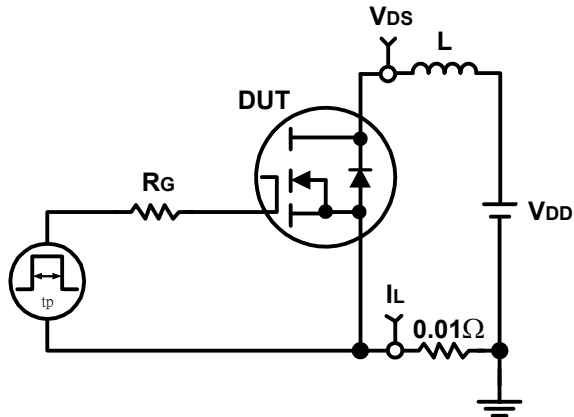
Gate Charge



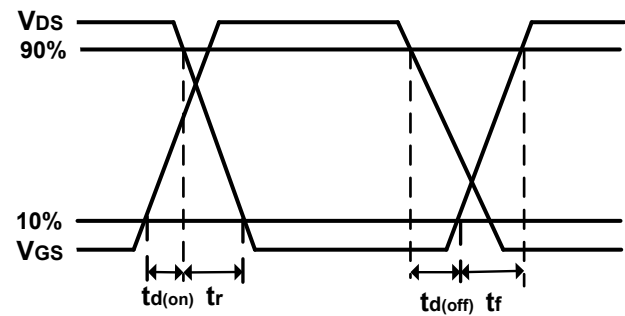
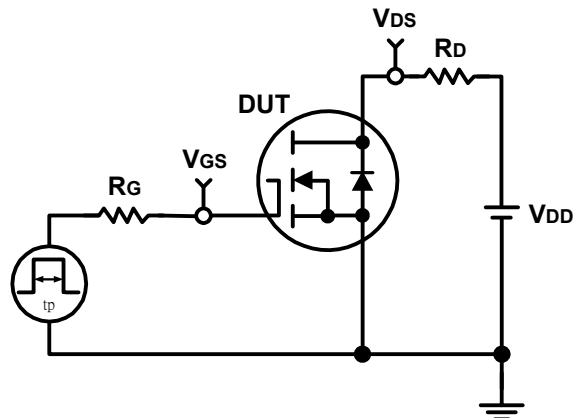
Transfer Characteristics



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



PDFN5*6-8L OUTLINE

