

General Description

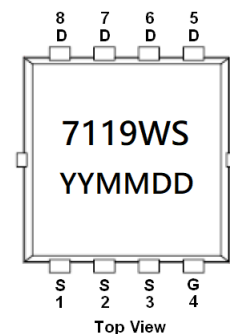
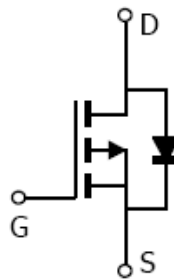
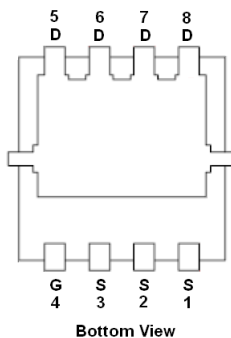
AFP7119WS, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- -200V/-1.2A, $R_{DS(ON)}=0.85\ \Omega@V_{GS}=-10V$
- -200V/-1.0A, $R_{DS(ON)}=0.9\ \Omega@V_{GS}=-6V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN3.3X3.3-8L package design

Pin Description (DFN3.3X3.3-8L)



Application

- DC-DC Converter
- POL

Pin Define

Pin	Symbol	Description
1	S	Source
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	D	Drain
7	D	Drain
8	D	Drain

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP7119WSFN308RG	7119WS	DFN3.3X3.3-8L	Tape & Reel	5000 EA

※ YY year code

※ MM month code

※ DD date code

※ AFP7119WSFN308RG : 13" Tape & Reel ; Pb- Free ; Halogen -Free



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

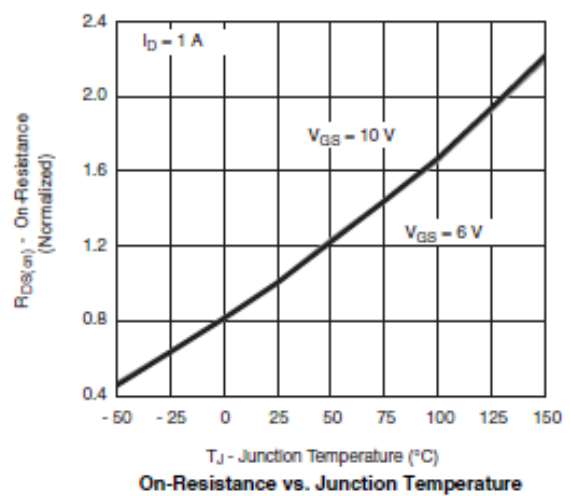
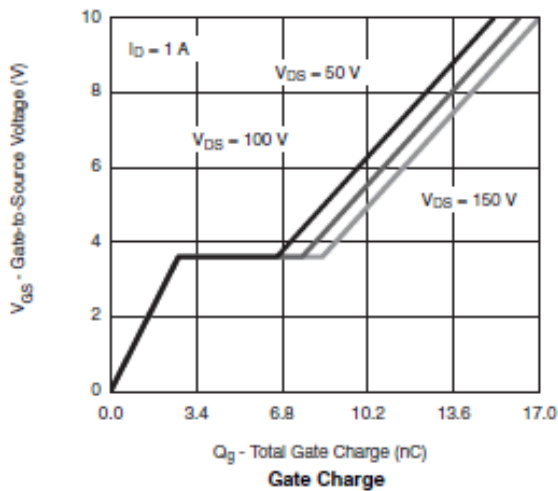
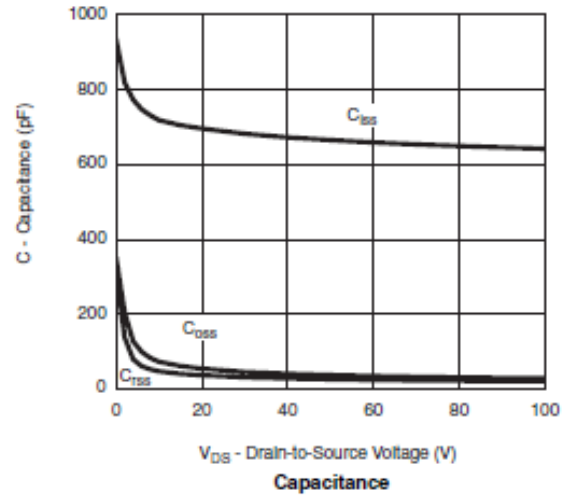
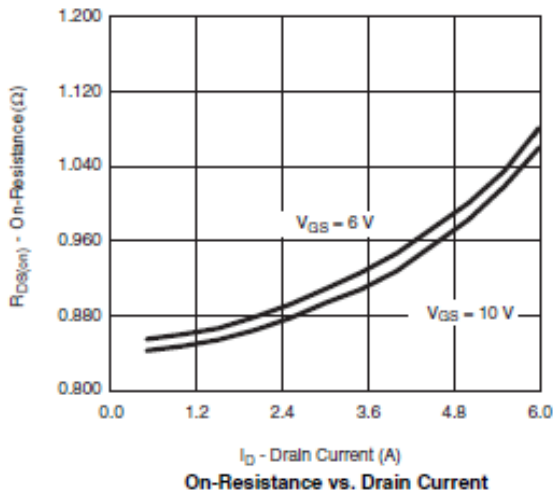
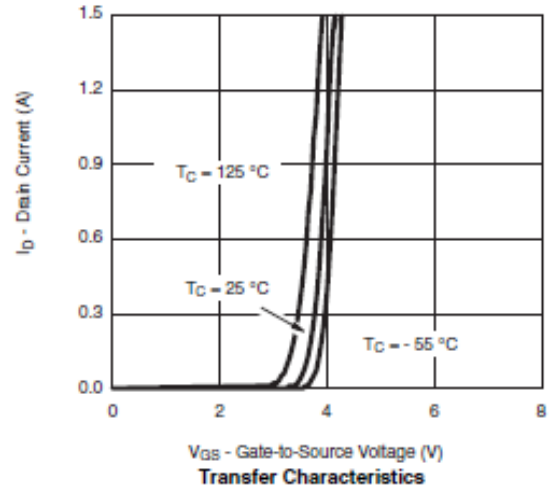
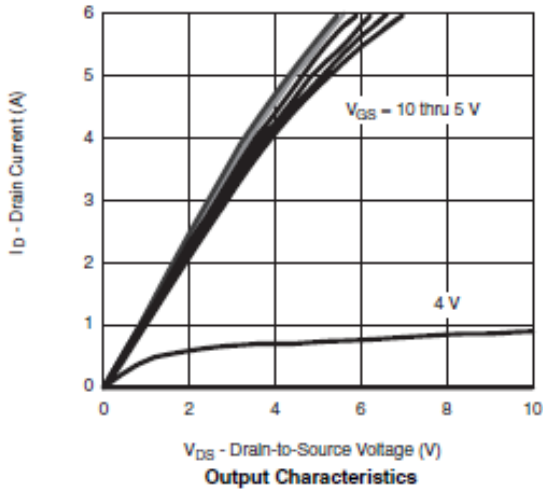
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-200	V
Gate –Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_J=150^{\circ}\text{C}$)	I_D	$T_C=25^{\circ}\text{C}$ $T_A=25^{\circ}\text{C}$	-3.8
		$T_C=70^{\circ}\text{C}$ $T_A=70^{\circ}\text{C}$	-3.0 -1.0
Pulsed Drain Current	I_{DM}	-5	A
Single pulse avalanche energy	E_{AS}	1.0	mJ
Continuous Source Current (Diode Conduction)	I_S	$T_C=25^{\circ}\text{C}$ $T_A=25^{\circ}\text{C}$	-5
		$T_C=70^{\circ}\text{C}$ $T_A=70^{\circ}\text{C}$	-3
Power Dissipation	P_D	$T_C=25^{\circ}\text{C}$ $T_A=25^{\circ}\text{C}$	50
		$T_C=70^{\circ}\text{C}$ $T_A=70^{\circ}\text{C}$	30 3.7
Operating Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-50/150	$^{\circ}\text{C}$
Thermal Resistance Junction-to-Case (Drain)	$R_{\theta JC}$	3.8	$^{\circ}\text{C/W}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	35	

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

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-200	-215		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-2.0	-3.0	-4.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-160V, V_{GS}=0V$			-1	uA
		$V_{DS}=-160V, V_{GS}=0V$ $T_J=85^{\circ}\text{C}$			-10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq -10V, V_{GS}=-10V$	-3			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-1.2A$		0.75	0.85	Ω
		$V_{GS}=-6V, I_D=-1.0A$		0.8	0.9	
Forward Transconductance	g_{FS}	$V_{DS}=-15V, I_D=-1.0A$		4		S
Diode Forward Voltage	V_{SD}	$I_S=-1.0A, V_{GS}=0V$		-0.75	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-100V, V_{GS}=-6V$ $I_D \equiv -1A$		12	25	nC
Gate-Source Charge	Q_{gs}			3.2		
Gate-Drain Charge	Q_{gd}			5.5		
Gate Resistance	R_g	$f=1\text{MHz}$		5.5	15	Ω
Pulse Diode Forward Current	I_{SM}				-12	A
Input Capacitance	C_{iss}	$V_{DS}=-50V, V_{GS}=0V$ $f=1\text{MHz}$		700		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			30		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-100V, R_L=100\Omega$ $I_D \equiv -1.0A, V_{GEN}=-10V$ $R_G=1.0\Omega$		10	20	ns
	t_r			12	25	
Turn-Off Time	$t_{d(off)}$			25	50	
	t_f			15	30	
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-4A, dI/dt=100A/\mu s,$		70	100	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$T_J=25^{\circ}\text{C}$		220	280	nC

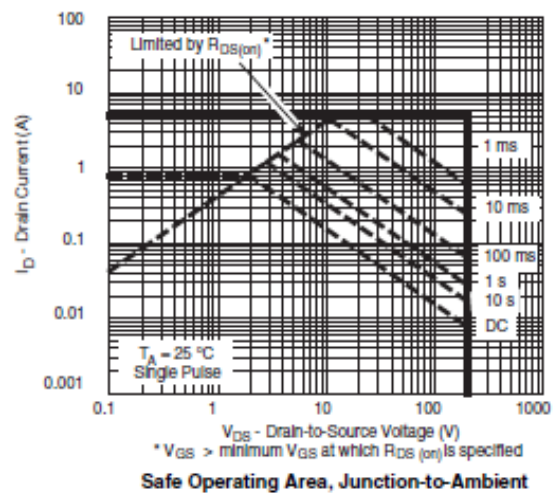
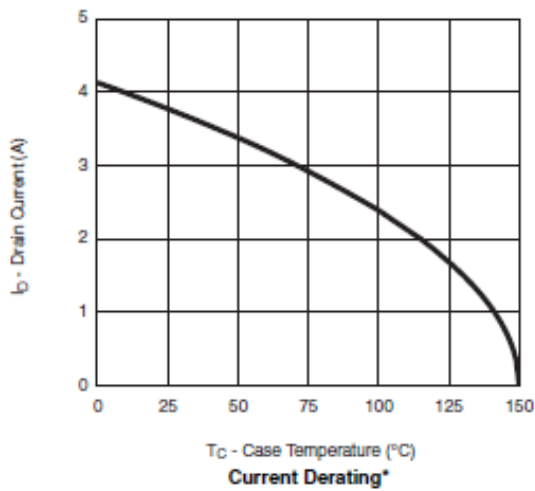
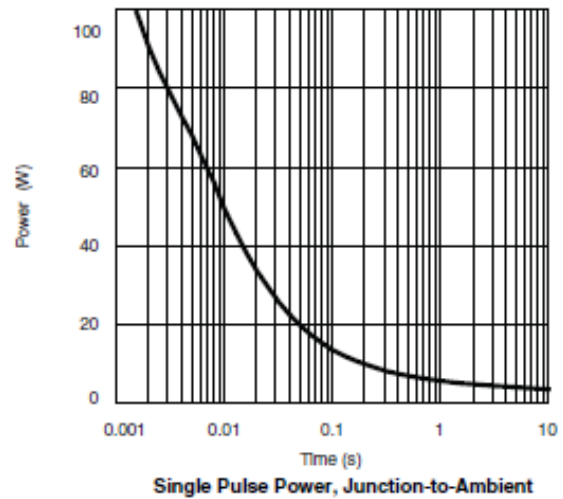
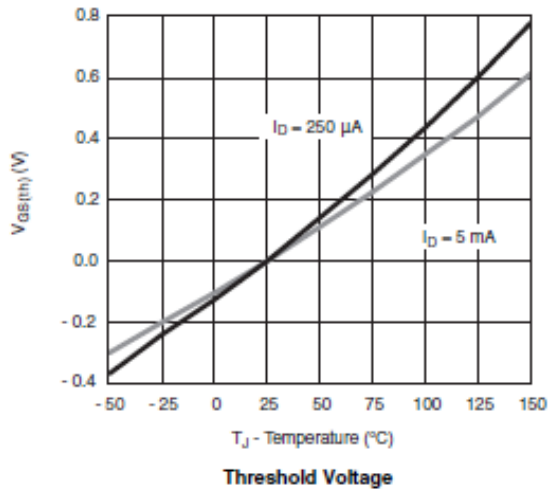
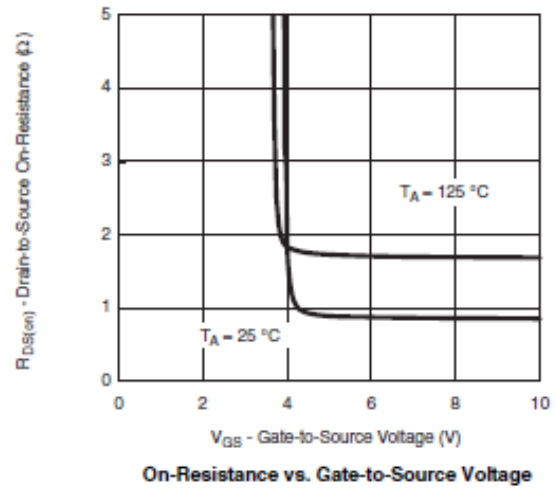
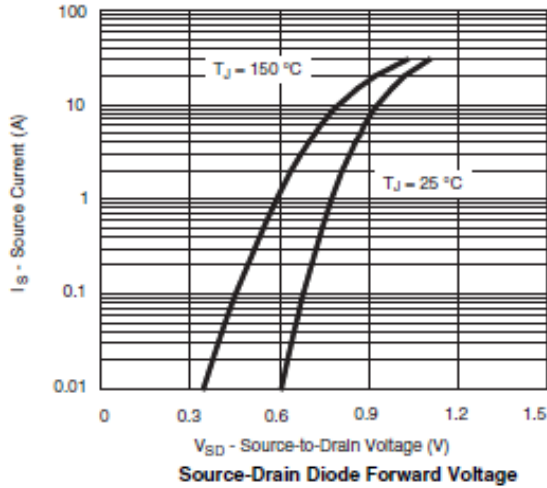


Typical Characteristics



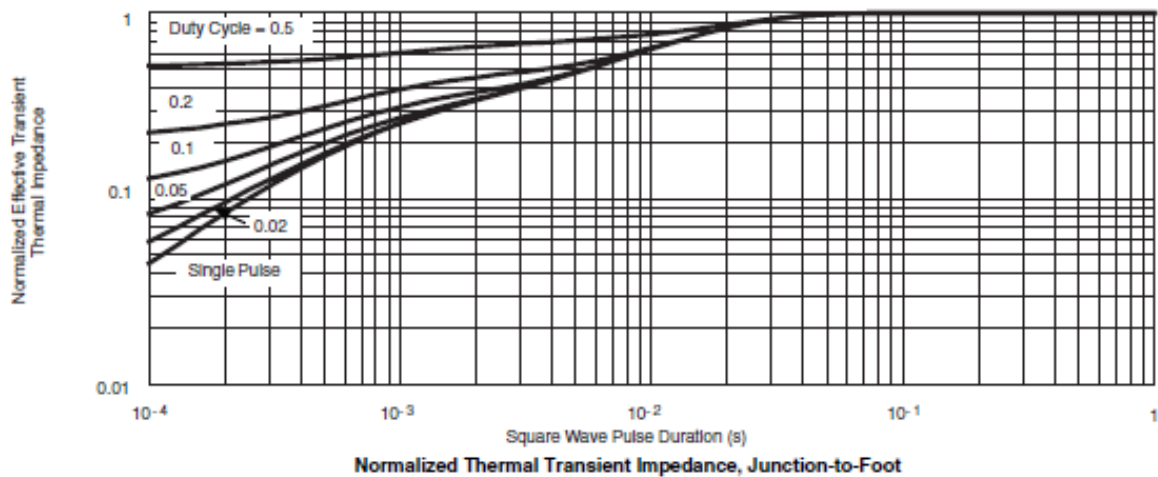
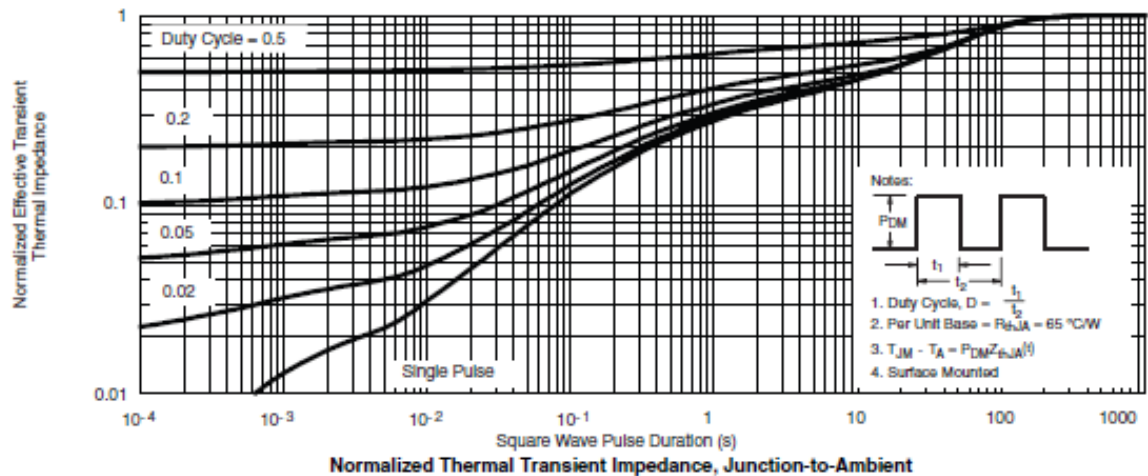
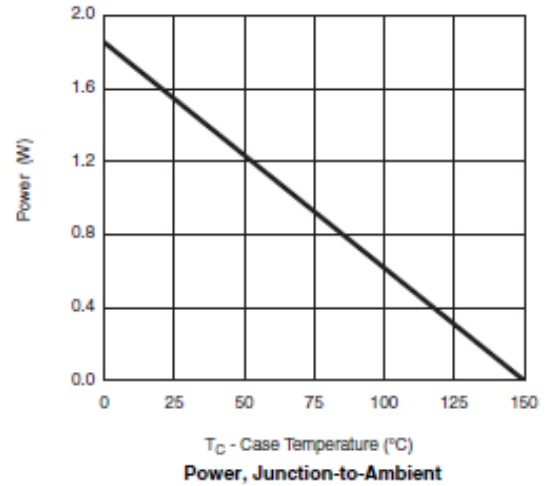
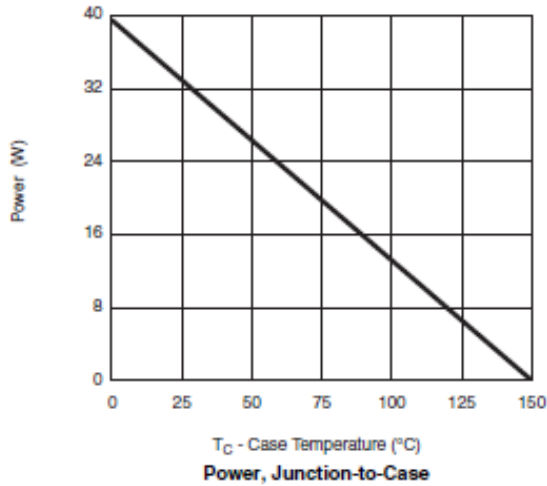


Typical Characteristics





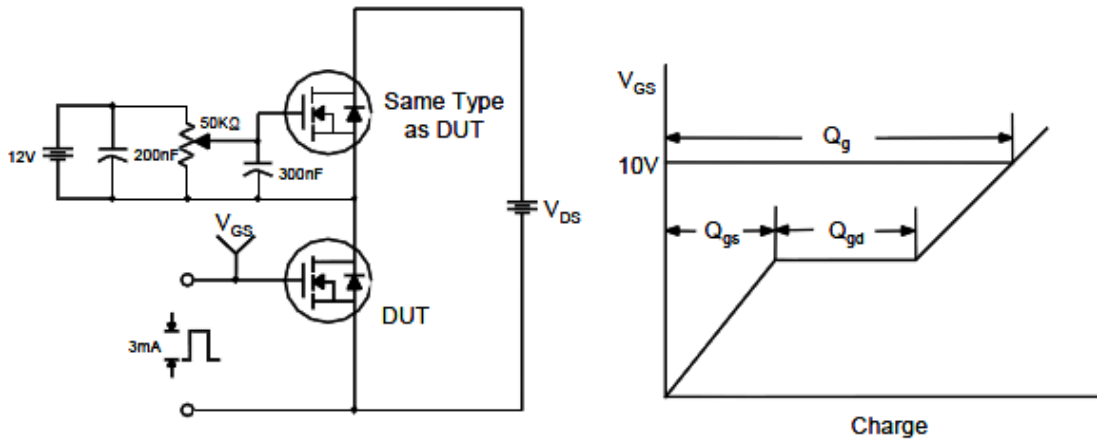
Typical Characteristics



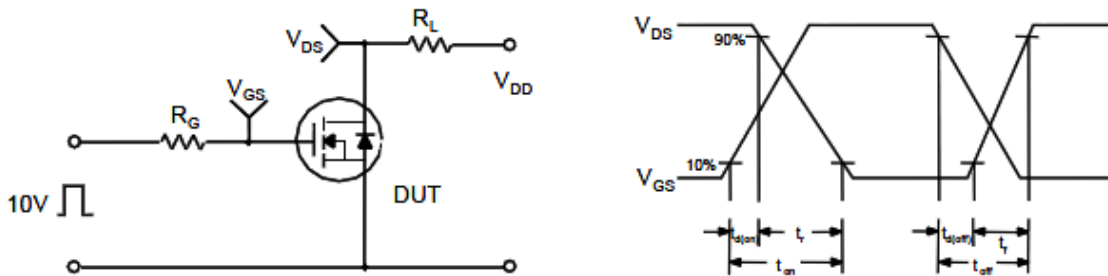


Typical Characteristics

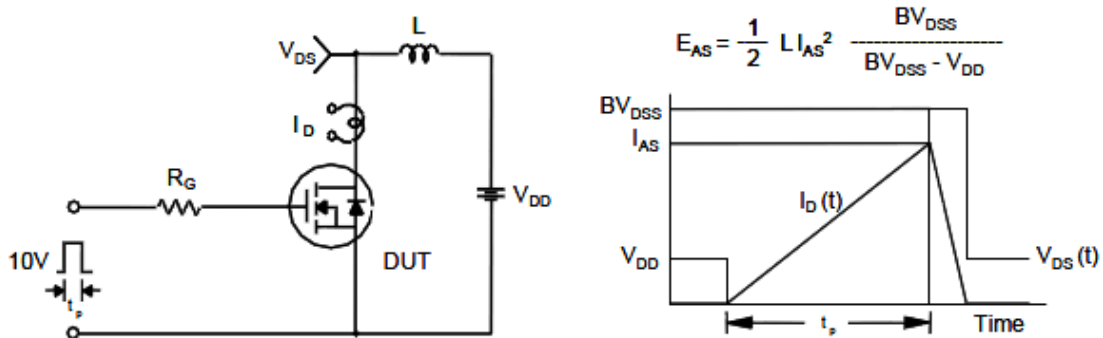
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

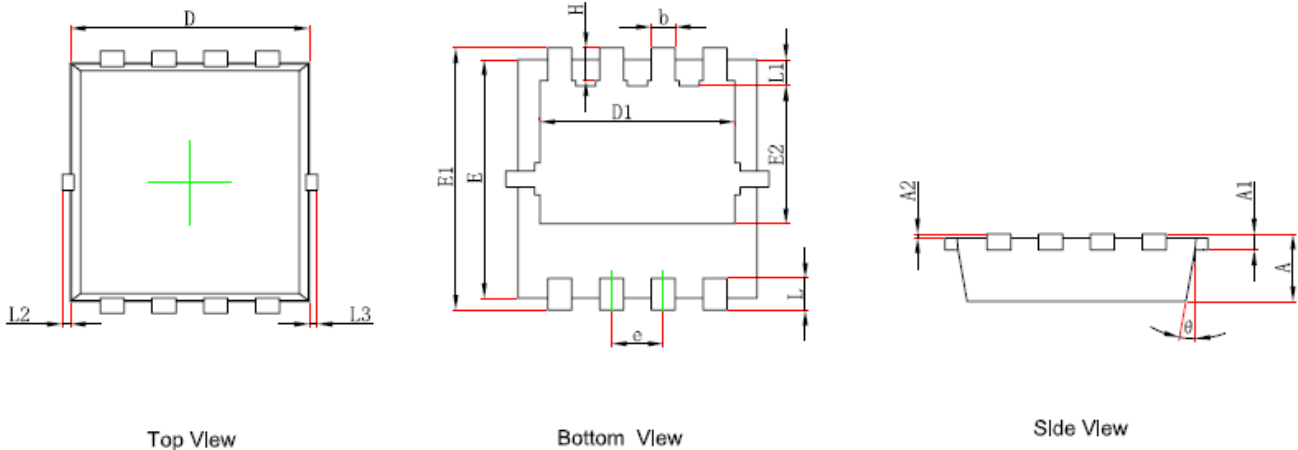


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (DFN3.3X3.3-8L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°

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