



General Description

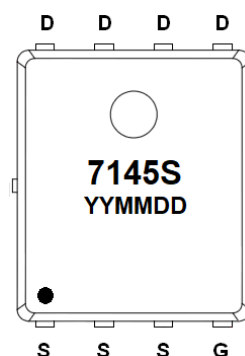
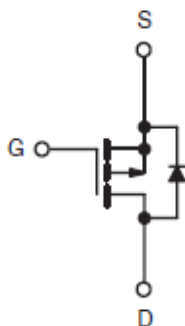
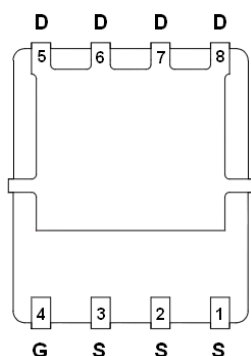
AFP7145S, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- $I_D = -15A, R_{DS(ON)} = 15m\Omega @ V_{GS} = -10V$
 $I_D = -10A, R_{DS(ON)} = 20m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN5X6-8L package design

Pin Description (DFN5X6-8L)



Application

- Load Switch
- Adaptor Switch
- Notebook PC

Pin Define

Pin	Symbol	Description
4	G	Gate
1~3	S	Source
5~8	D	Drain

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP7145SFN568RG	7145S	DFN5X6-8L	Tape & Reel	2500 EA

※ A Lot code

※ B Date code

※ AFP7145SFN568RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	-30	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _{DSM}	-15	A
		-10	
Pulsed Drain Current	I _{DM}	-30	
Continuous Source Current(Diode Conduction)	I _S	-8	
Single Pulse Avalanche Current	I _{AS}	-25	
Power Dissipation	P _{DSM}	4.2	W
		2.7	
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	t ≤ 10 s	25	°C/W
Thermal Resistance-Junction to Case	Steady-State	2.9	

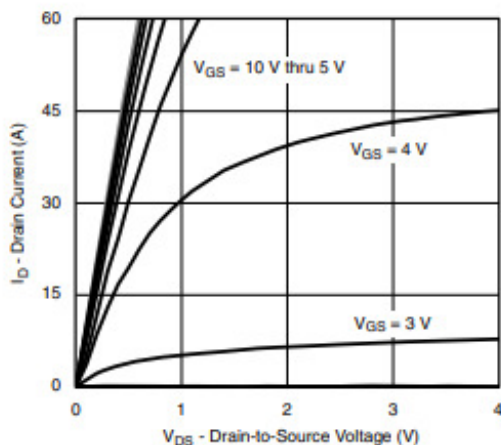
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

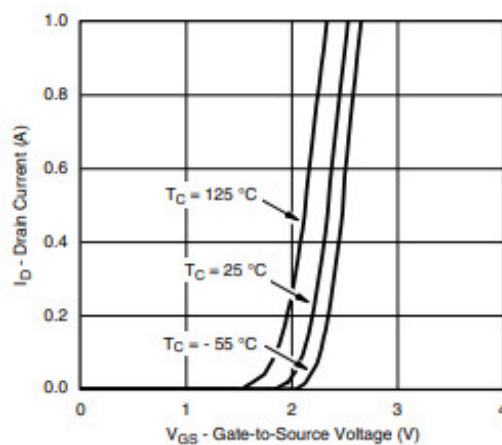
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = -250uA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250uA	-1.0		-2.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±25V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	uA
		V _{DS} =-24V, V _{GS} =0V T _J =85°C			-30	
On-State Drain Current	I _{D(on)}	V _{DS} ≤ -10V, V _{GS} =-10V	-30			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D = -15A		10	15	mΩ
		V _{GS} =-4.5V, I _D =-10A		15	20	
Forward Transconductance	g _{FS}	V _{DS} =-15V, I _D =-10A		35		S
Diode Forward Voltage	V _{SD}	I _S =-2.3A, V _{GS} =0V		-0.7	-1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-4.5V I _D =-13.9A		20	35	nC
Gate-Source Charge	Q _{gs}			6		
Gate-Drain Charge	Q _{gd}			12		
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V f=1MHz		1650		pF
Output Capacitance	C _{oss}			350		
Reverse Transfer Capacitance	C _{rss}			285		
Turn-On Time	t _{d(on)}	V _{DD} =-15V, R _L =1.35Ω I _D =-11.1A, V _{GEN} =-10V R _G =1Ω		10	20	ns
	t _r			10	20	
Turn-Off Time	t _{d(off)}			30	60	
	t _f			10	20	



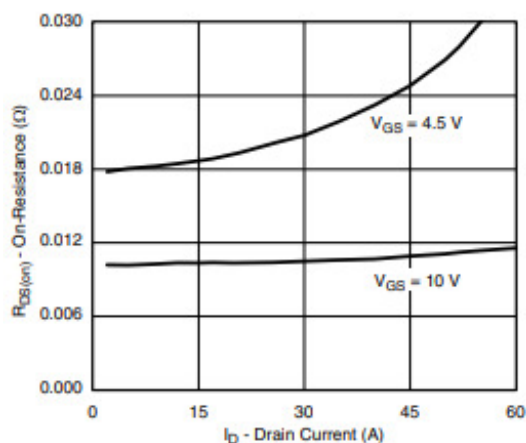
Typical Characteristics



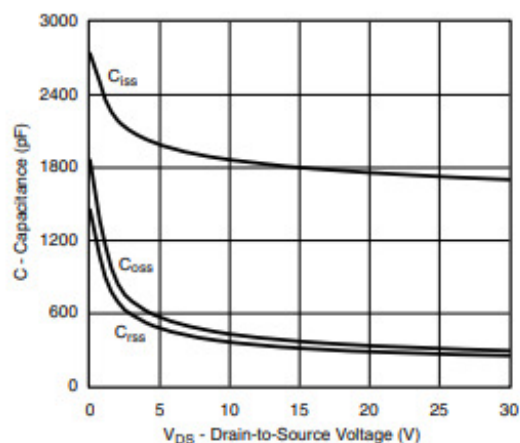
Output Characteristics



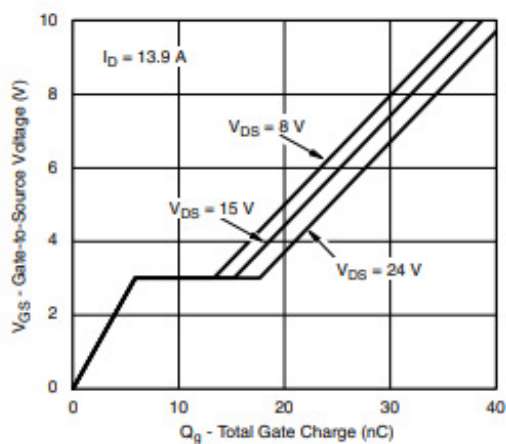
Transfer Characteristics



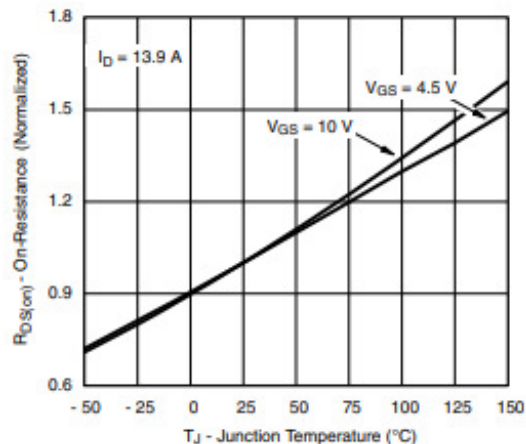
On-Resistance vs. Drain Current



Capacitance



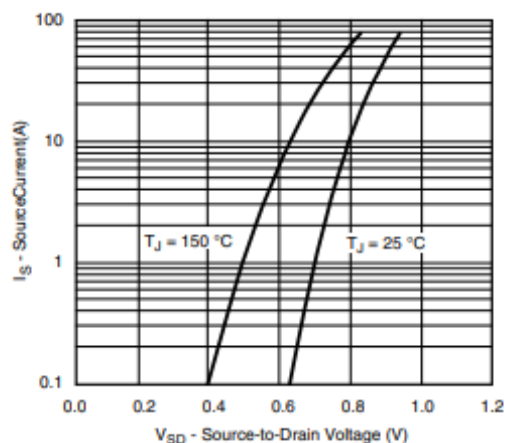
Gate Charge



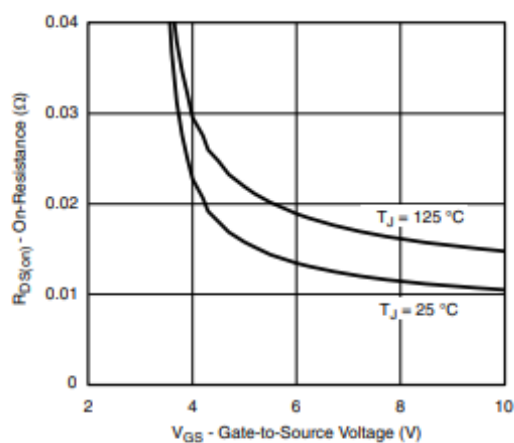
On-Resistance vs. Junction Temperature



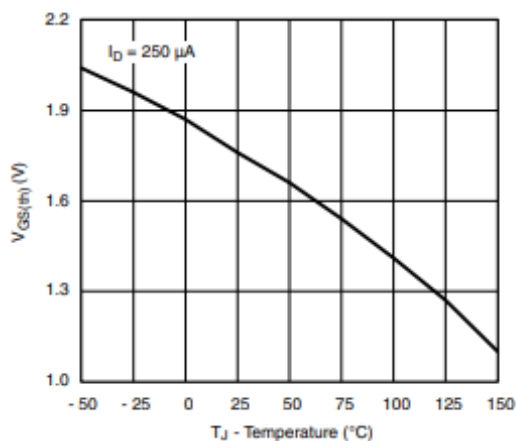
Typical Characteristics



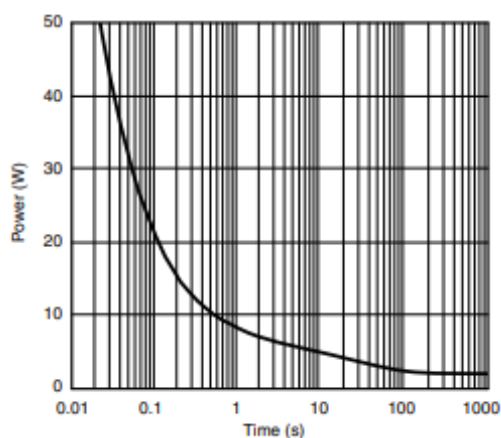
Source-Drain Diode Forward Voltage



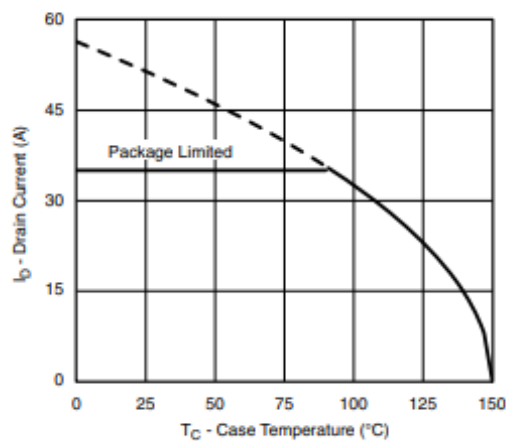
On-Resistance vs. Gate-to-Source Voltage



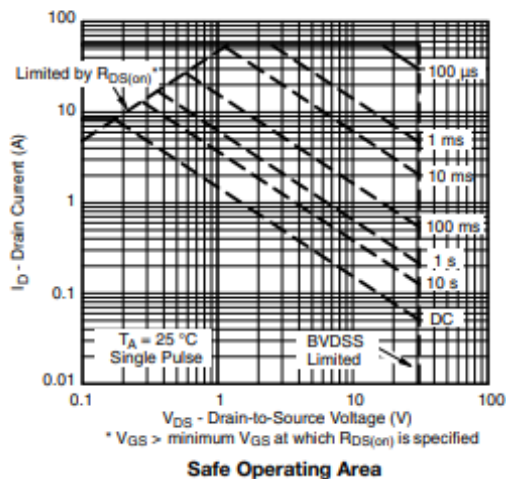
Threshold Voltage



Single Pulse Power, Junction-to-Ambient

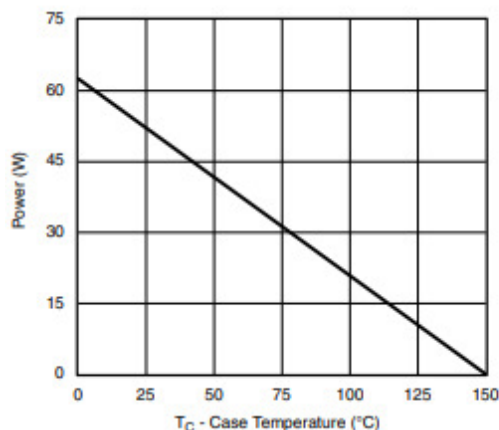


Current Derating ^a

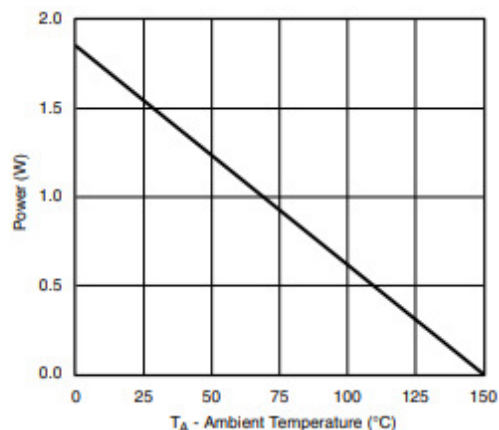




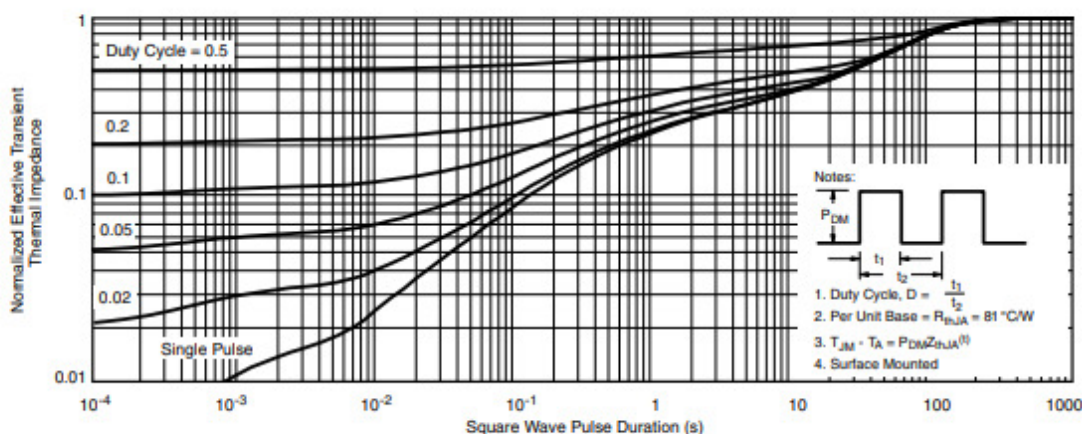
Typical Characteristics



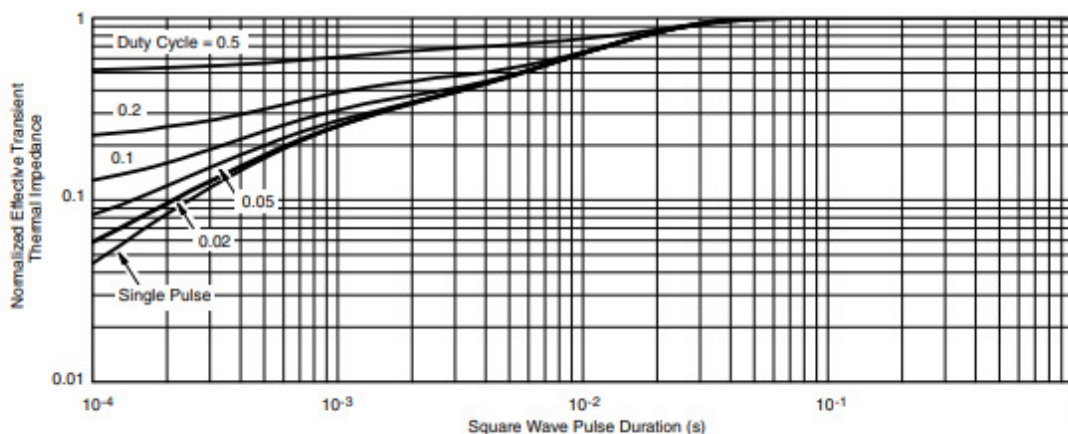
Power Derating, Junction-to-Case



Power Derating, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

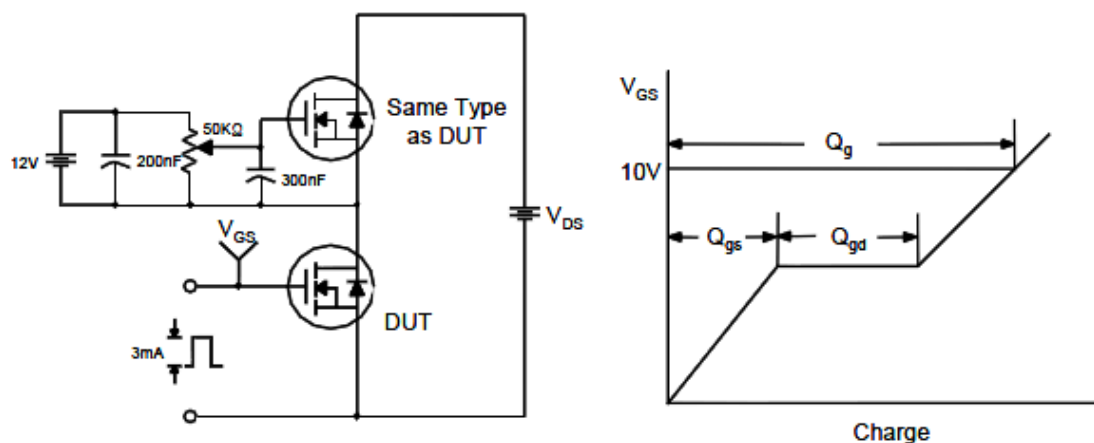


Normalized Thermal Transient Impedance, Junction-to-Case

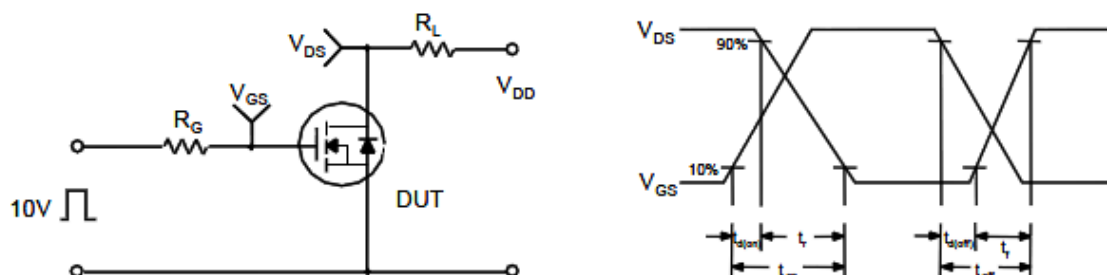


Typical Characteristics

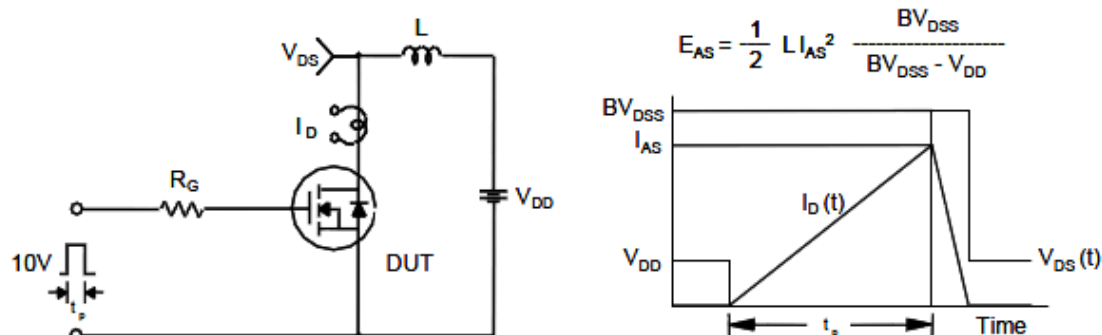
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

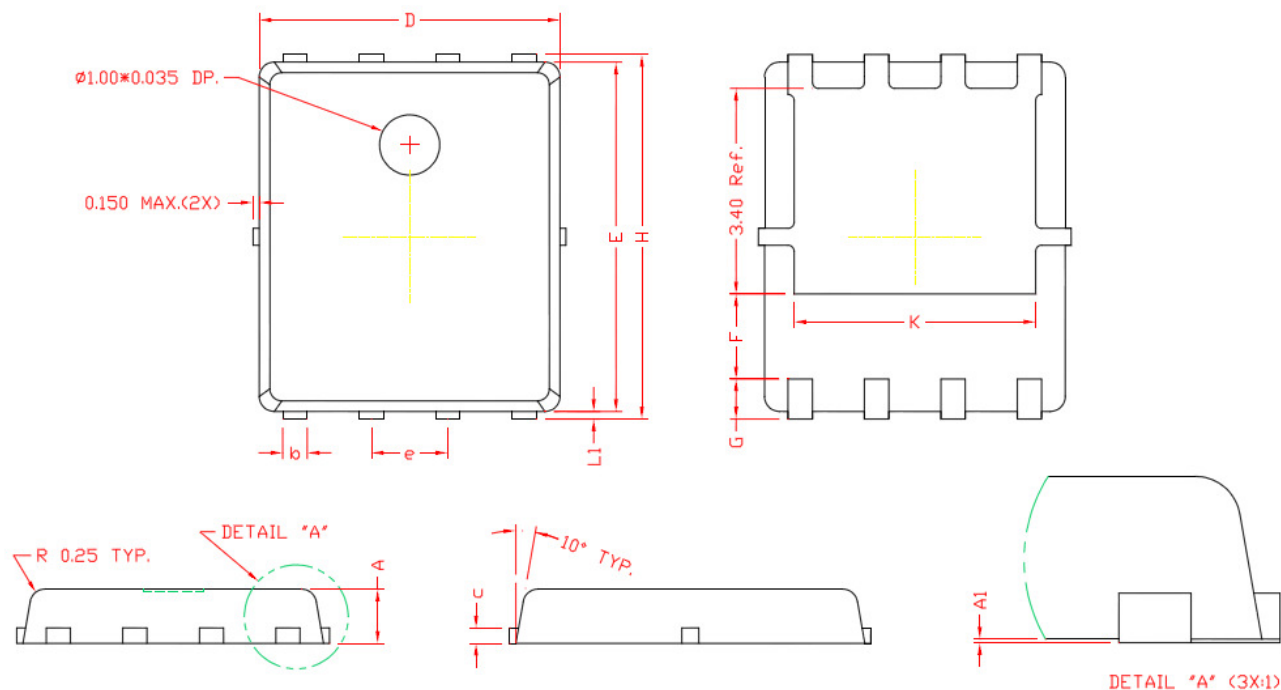


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (DFN5X6-8L)



DIMENSIONS

REF.	Millimeters		REF.	Millimeters	
	Min.	Max.		Min.	Max.
A	0.80	1.00	E	5.70	5.90
A1	0.00	0.05	e	1.27 BSC.	
b	0.35	0.49	H	5.95	6.20
c	0.254 Ref.		L1	0.10	0.18
D	4.90	5.10	G	0.60 Ref.	
F	1.40 Ref.		K	4.00 Ref.	

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