



General Description

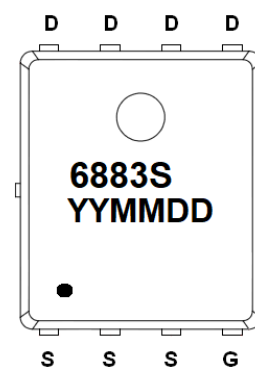
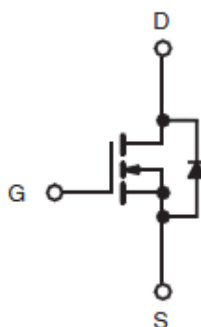
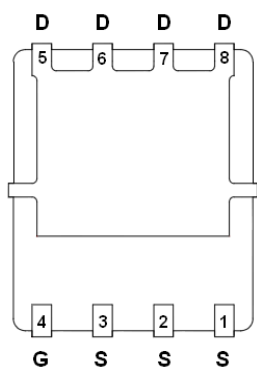
AFN6883S, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- $I_D=20A, R_{DS(ON)}= 7.8m\Omega@V_{GS}=10V$
- $I_D=20A, R_{DS(ON)}= 9.5m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN5X6-8L package design

Pin Description (DFN5X6-8L)



Application

- Networking / Telecom / Server
- LED Lighting Applications
- Quick Charger Applications
- DC-DC Primary Side Switch

Pin Define

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

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFN6883SFN568RG	6883S	DFN5X6-8L	Tape & Reel	2500 EA

- ※ 6883S : Parts Code
- ※ YYMMDD : Date Code
- ※ AFN6883SFN568RG : 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}	120	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _{DSM}	T _A =25°C	17
		T _A =70°C	13
Pulsed Drain Current	I _{DM}	200	A
Continuous Source Current(Diode Conduction)	I _S	4.9	
Single Pulse Avalanche Current	E _{AS}	L=0.1mH	30
			45
Power Dissipation	P _D	T _A =25°C	5.4
		T _A =75°C	3.4
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	25	°C/W
Thermal Resistance-Junction to case (drain)	R _{θJC}	1.5	

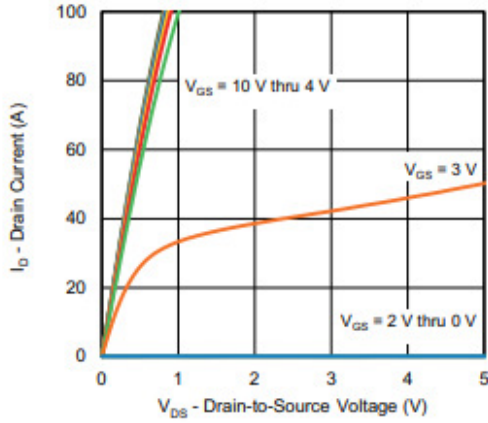
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

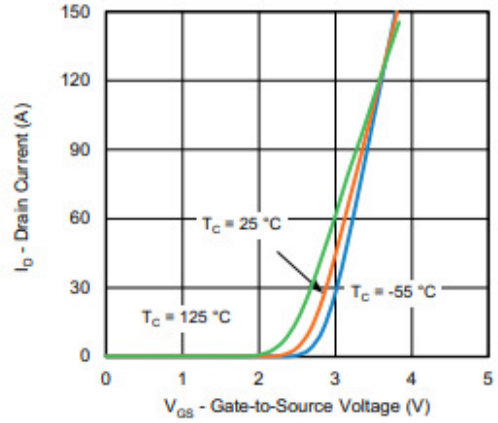
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	120	133		V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0	1.7	2.5	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =96V, V _{GS} =0V			1	uA
		V _{DS} =96V, V _{GS} =0V T _J =85°C			10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 10V, V _{GS} =10V	40			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		6.5	7.8	mΩ
		V _{GS} =4.5V, I _D =20A		7.8	9.5	
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =15A		85		S
Diode Forward Voltage	V _{SD}	I _S =5A, V _{GS} =0V		0.8	1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =60V, V _{GS} =4.5V I _D ≅15A		25	45	nC
Gate-Source Charge	Q _{gs}			12		
Gate-Drain Charge	Q _{gd}			5		
Input Capacitance	C _{iss}	V _{DS} =60V, V _{GS} =0V f=1MHz		3750		pF
Output Capacitance	C _{oss}			200		
Reverse Transfer Capacitance	C _{rss}			15		
Turn-On Time	t _{d(on)}	V _{DD} =60V, R _L =3.33Ω I _D ≅15A, V _{GEN} =10V R _G =1Ω		15	30	ns
	t _r			10	20	
Turn-Off Time	t _{d(off)}			35	70	
	t _f			10	20	



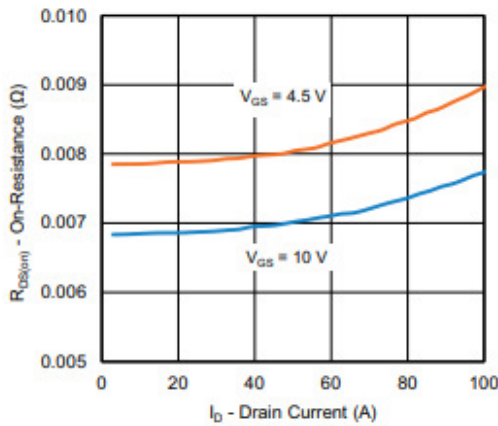
Typical Characteristics



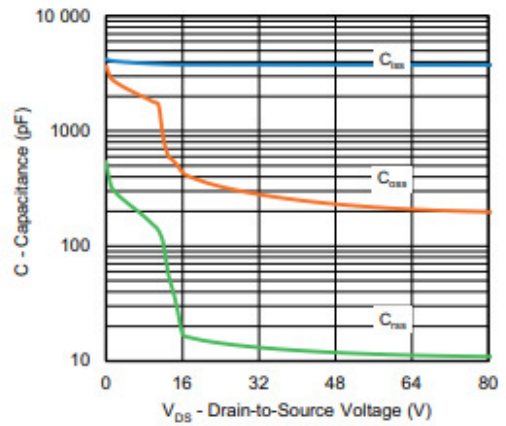
Output Characteristics



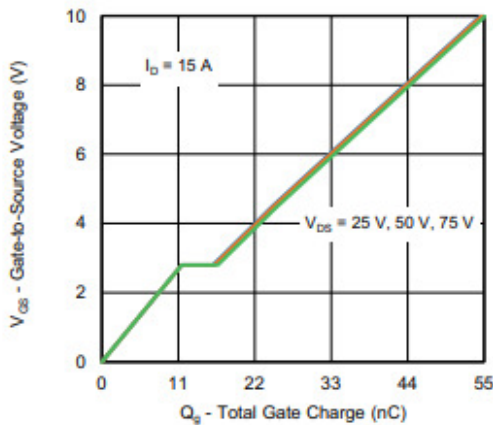
Transfer Characteristics



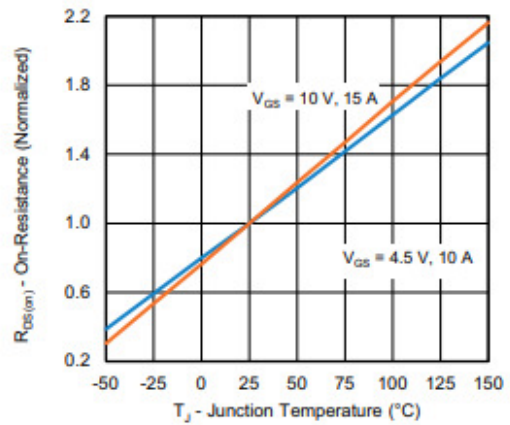
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



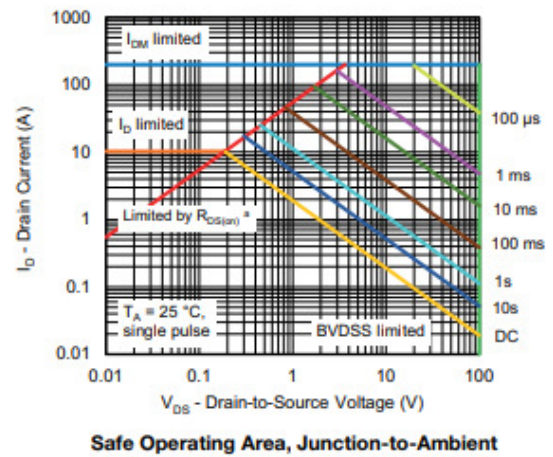
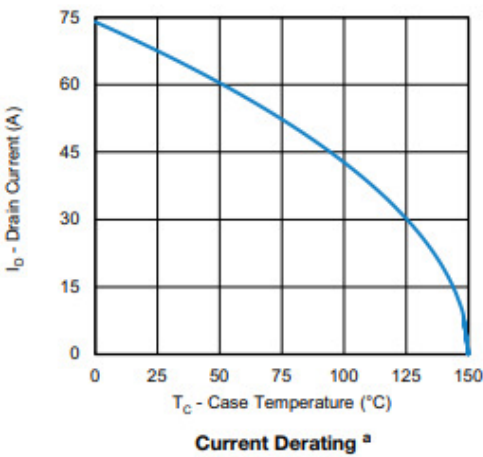
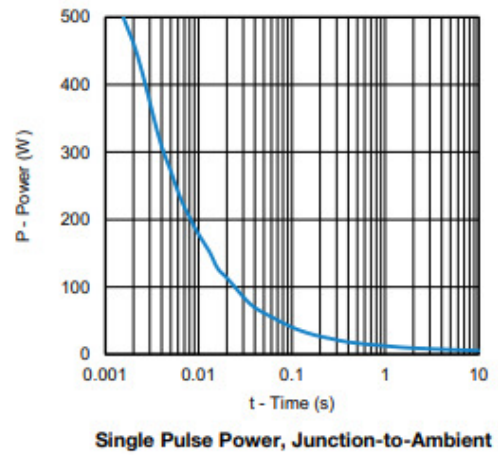
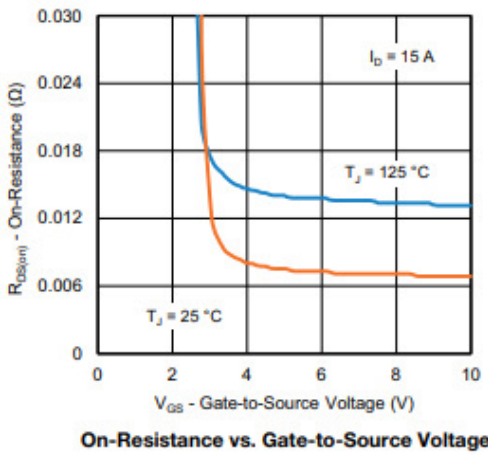
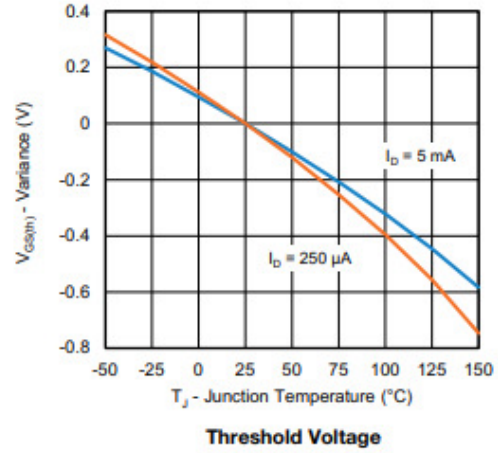
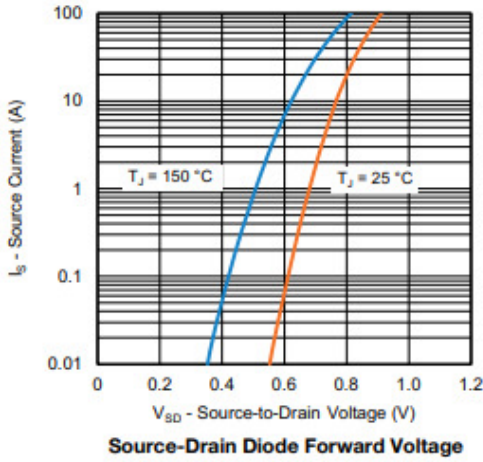
Gate Charge



On-Resistance vs. Junction Temperature

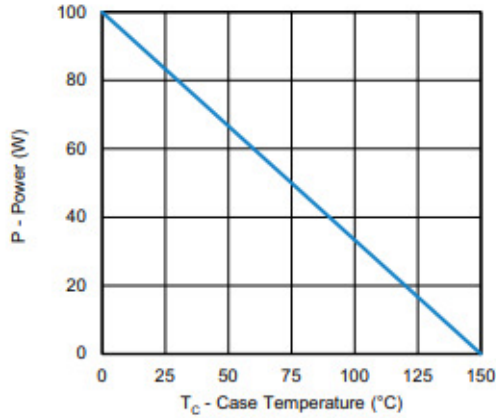


Typical Characteristics

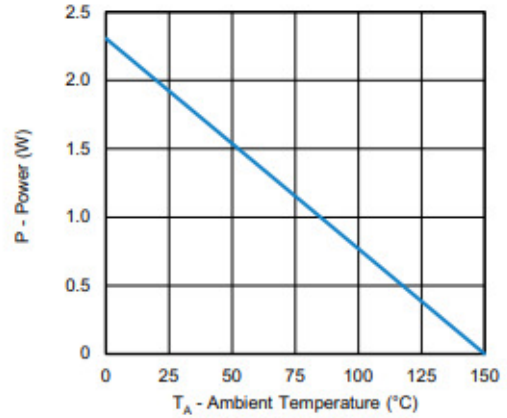




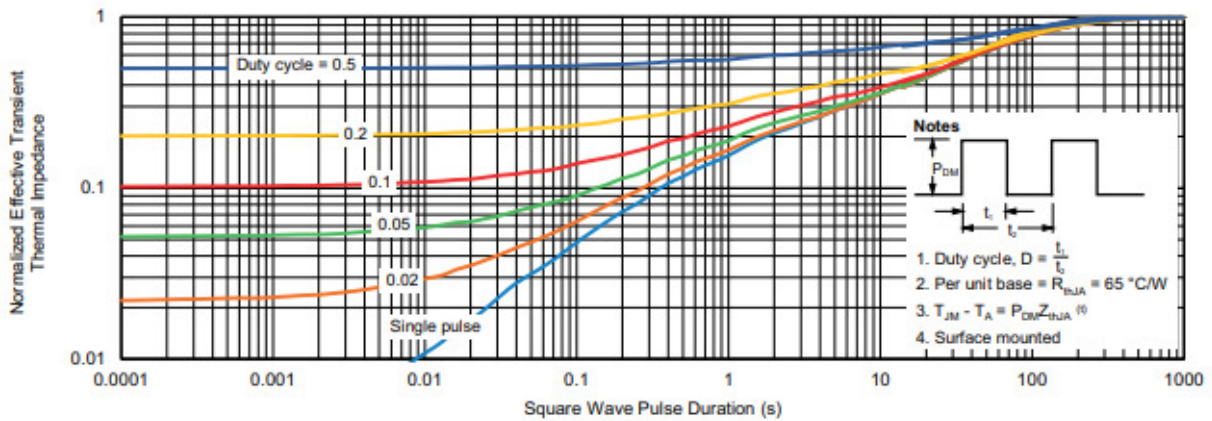
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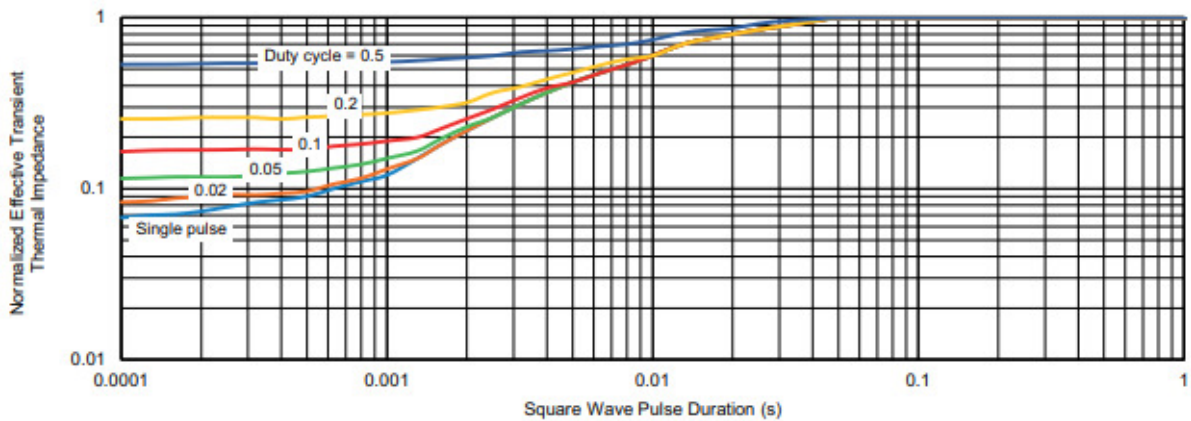
Power, Junction-to-Case



Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

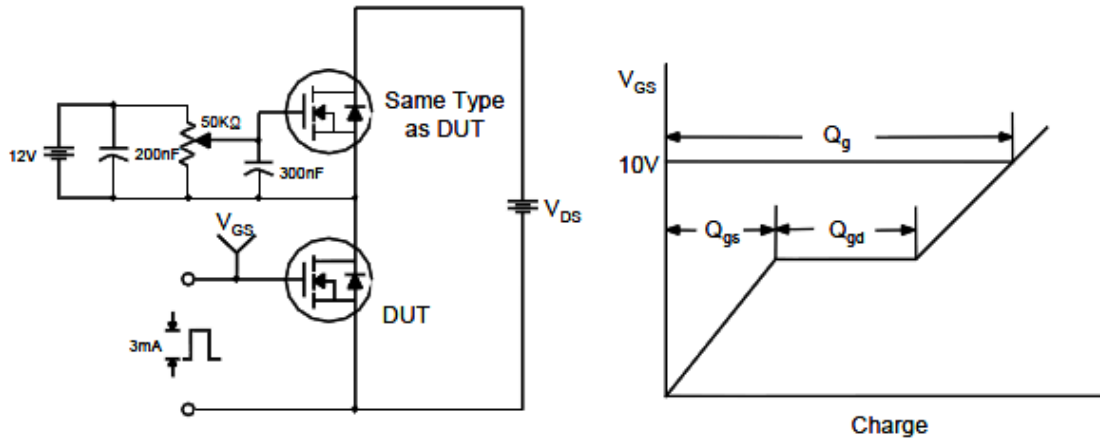


Normalized Thermal Transient Impedance, Junction-to-Case

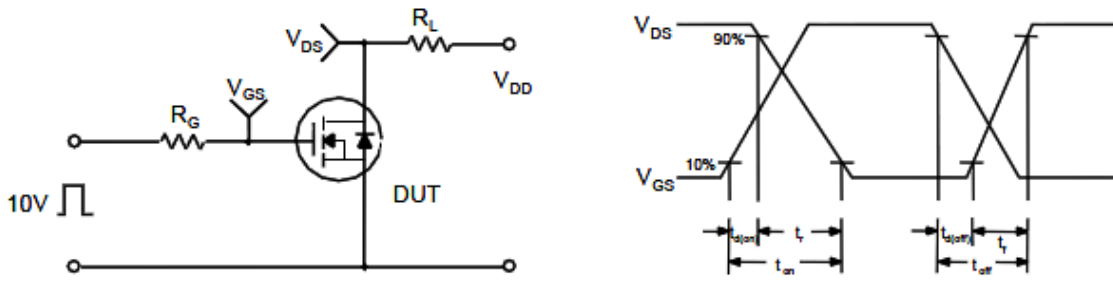


Typical Characteristics

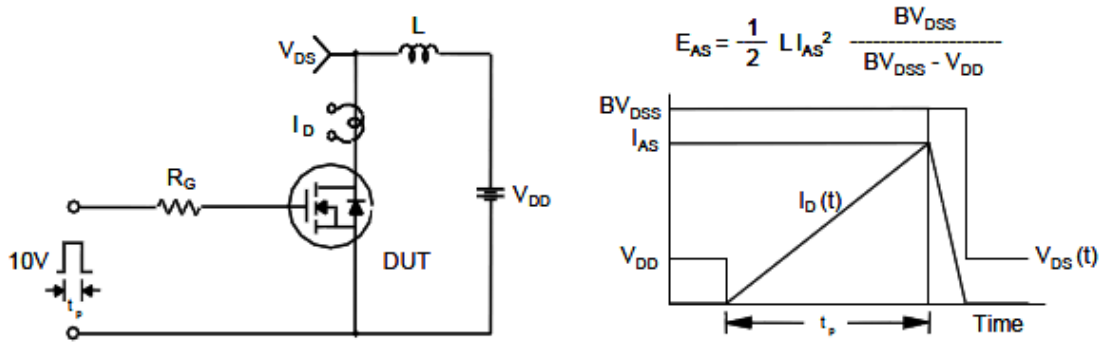
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

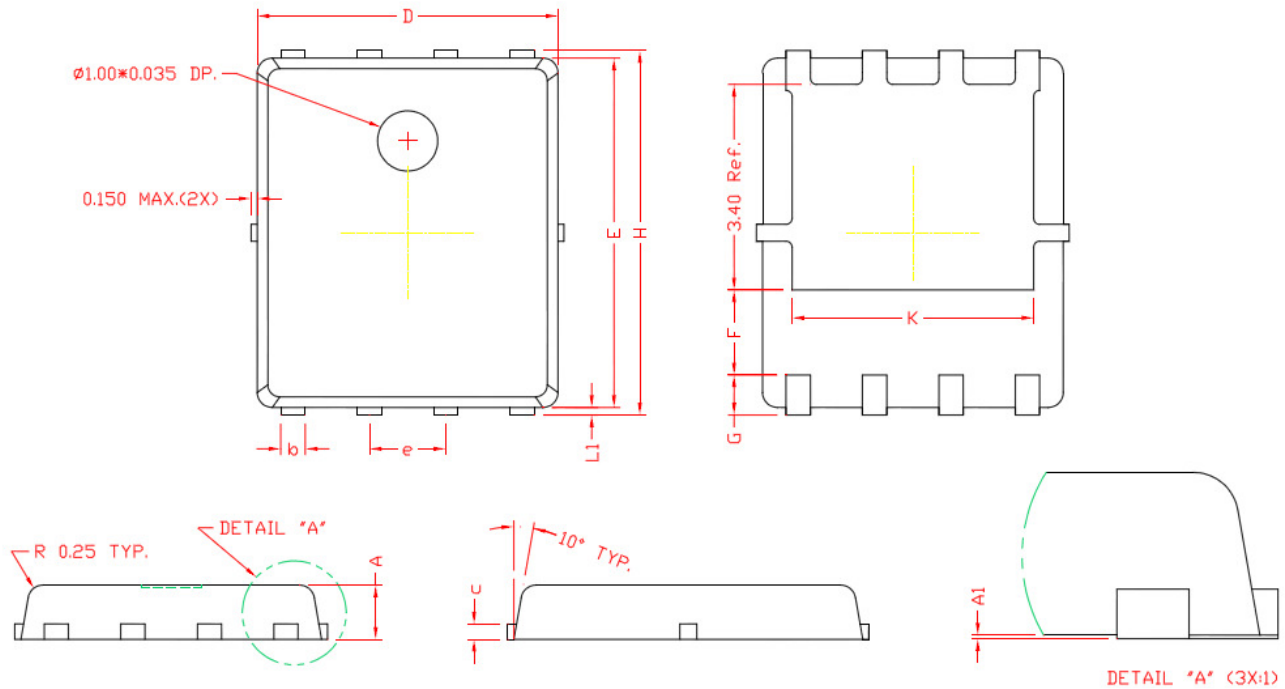


Unclamped Inductive Switching Test Circuit & Waveforms





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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 2F, No.80, Sec.1, Cheng Kung Rd., Nan Kang Dist., Taipei City 115, Taiwan (R.O.C.)
 Tel : 886 2) 2651 3928
 Fax : 886 2) 2786 8483
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