

GSM3366W

60V N & P Pair Enhancement Mode MOSFET

Product Description

GSM3366W, N & P Pair 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

- N-Channel
60V/12A, $R_{DS(ON)}=48m\Omega@V_{GS}=10V$
60V/10A, $R_{DS(ON)}=54m\Omega@V_{GS}=4.5V$
- P-Channel
-60V/-8A, $R_{DS(ON)}=105m\Omega@V_{GS}=-10V$
-60V/-6A, $R_{DS(ON)}=115m\Omega@V_{GS}=-4.5V$

Applications

- DC/DC Converter
- Load Switch
- DC FAN

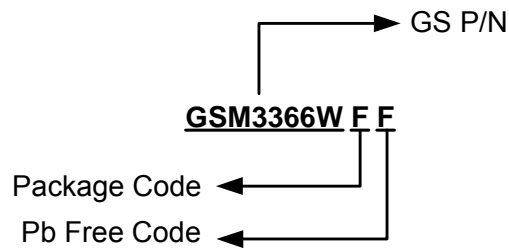
Packages & Pin Assignments

GSM3366WFF (DFN3X3-8L)		
Pin	Symbol	Description
1	S1	Source 1
2	G1	Gate 1
3	S2	Source 2
4	G2	Gate 2
5	D2	Drain 2
6	D2	Drain 2
7	D1	Drain 1
8	D1	Drain 1

N-Channel MOSFET

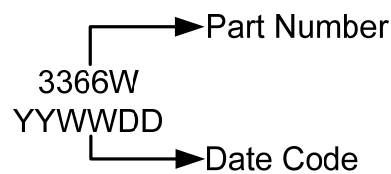
P-Channel MOSFET

Ordering Information



Part Number	Package	Quantity Reel
GSM3366WFF	DFN3X3-8L	5000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

Symbol	Parameter	Typical		Unit	
		N-Channel	P-Channel		
V _{DSS}	Drain-Source Voltage	60	-60	V	
V _{GSS}	Gate –Source Voltage	±20	±20	V	
I _D	Continuous Drain Current (T _J =150°C)	T _A =25°C	12	-8	A
		T _A =70°C	10	-6	
I _{DM}	Pulsed Drain Current	30	-30	A	
I _S	Continuous Source Current (Diode Conduction)	10	-10	A	
P _D	Power Dissipation	T _A =25°C	2	1.8	W
		T _A =70°C	1.5	1.2	
T _J	Operating Junction Temperature	150	150	°C	
T _{STG}	Storage Temperature Range	-55/150	-55/150	°C	
R _{θJA}	Thermal Resistance-Junction to Ambient	56	62.5	°C/W	

Electrical Characteristics (N-Channel)

(T_A=25°C unless otherwise noted)

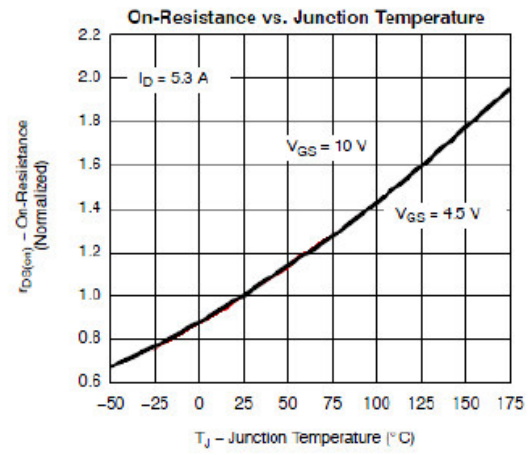
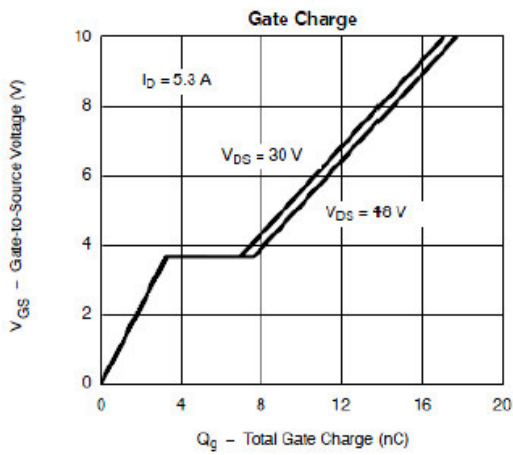
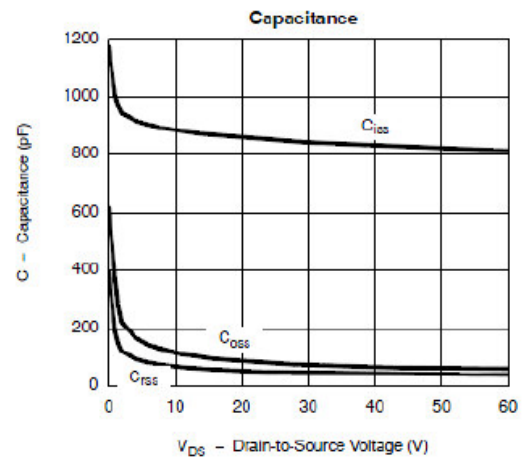
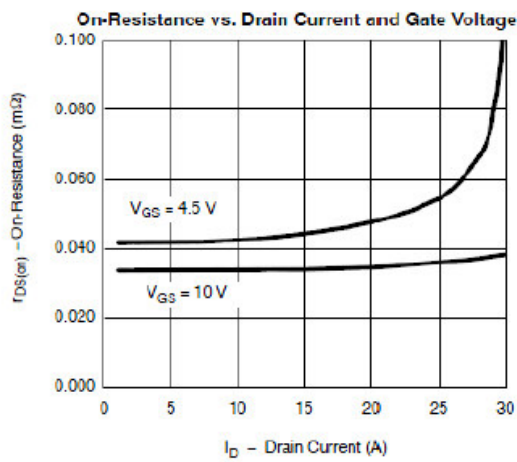
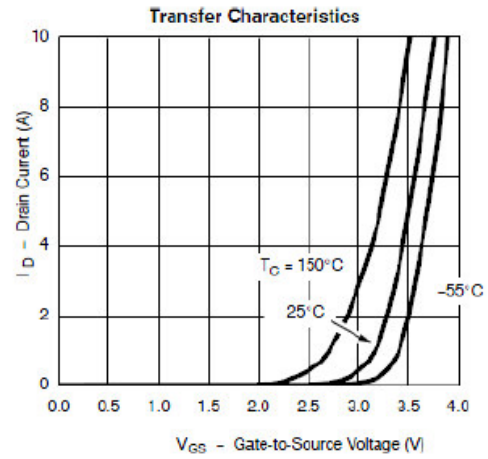
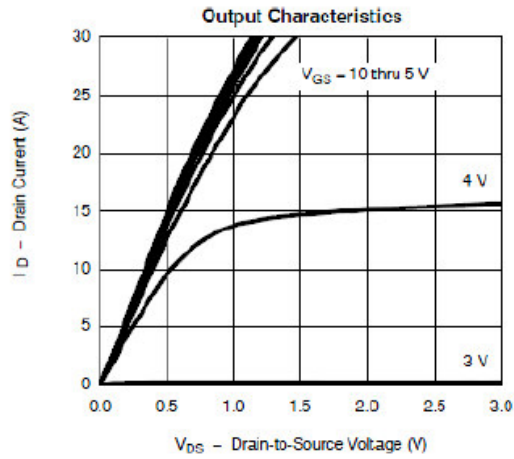
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.8		2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} =0V			1	uA
		V _{DS} =48V, V _{GS} =0V, T _J =85°C			5	
I _{D(on)}	On-State Drain Current	V _{DS} ≥5V, V _{GS} =4.5V	30			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =12A		40	48	mΩ
		V _{GS} =4.5V, I _D =10A		44	54	
g _{FS}	Forward Transconductance	V _{DS} =15V, I _D =5.3A		24		S
V _{SD}	Diode Forward Voltage	I _S =2.0A, V _{GS} =0V		0.8	1.2	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz		890		pF
C _{oss}	Output Capacitance			85		
C _{rss}	Reverse Transfer Capacitance			48		
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =5V, I _D =5.6A		10	15	nC
Q _{gs}	Gate-Source Charge			3.5		
Q _{gd}	Gate-Drain Charge			3.6		
t _{d(on)}	Turn-On Time	V _{DD} =30V, R _L =6.8Ω, I _D =5.0A, V _{GEN} =4.5V, R _G =6Ω		10	15	ns
T _r				12	20	
t _{d(off)}	Turn-Off Time			25	35	
T _f				10	15	

Electrical Characteristics (P-Channel)

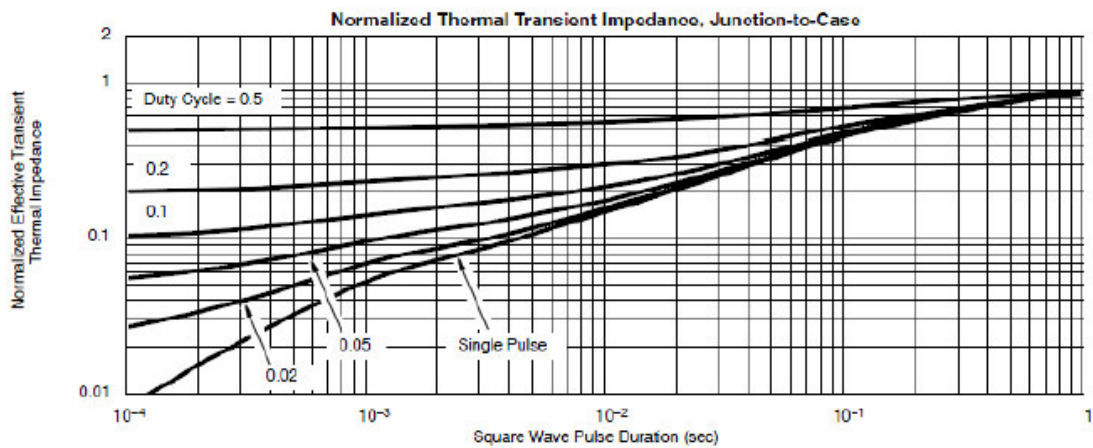
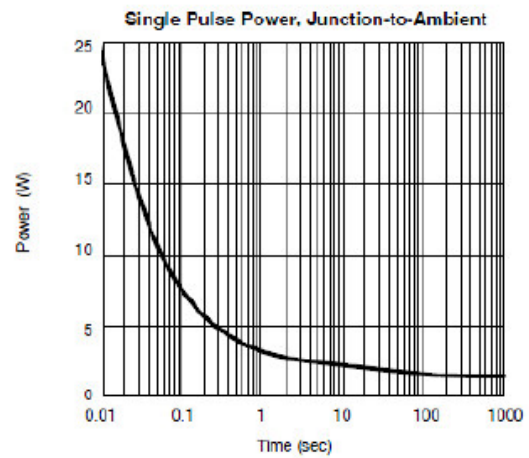
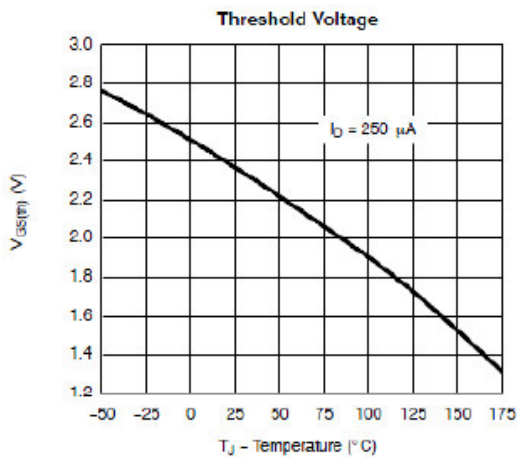
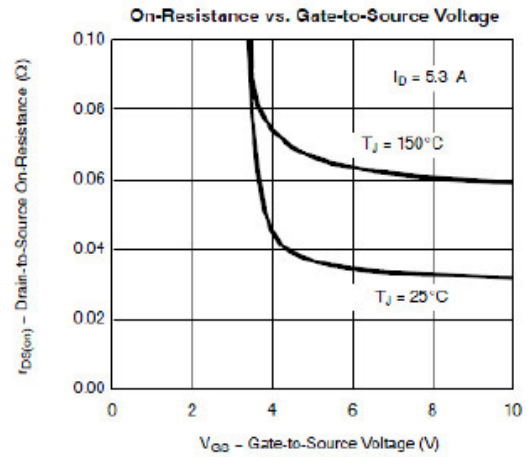
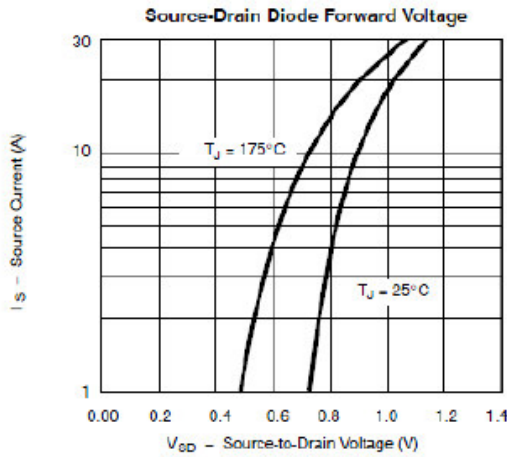
(T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
Static							
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-60			V	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.8		-2.5		
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA	
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-48V, V _{GS} =0V			-1	uA	
		V _{DS} =-48V, V _{GS} =0V, T _J =85°C			-20		
I _{D(on)}	On-State Drain Current	V _{DS} ≤ -5V, V _{GS} =-10V	-20			A	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10.0V, I _D =-8.0A		96	105	mΩ	
		V _{GS} =-4.5V, I _D =-6.0A		104	115		
g _{FS}	Forward Transconductance	V _{DS} =-15V, I _D =-3.2A		12		S	
V _{SD}	Diode Forward Voltage	I _S =-2A, V _{GS} =0V		-0.8	-1.2	V	
Dynamic							
C _{iss}	Input Capacitance	V _{DS} =-30V, V _{GS} =0V, f=1MHz		900		pF	
C _{oss}	Output Capacitance			90			
C _{rss}	Reverse Transfer Capacitance			40			
Q _g	Total Gate Charge	V _{DS} =-30V, V _{GS} =-10V, I _D =-4.0A		12	20	nC	
Q _{gs}	Gate-Source Charge			2.5			
Q _{gd}	Gate-Drain Charge			3.5			
t _{d(on)}	Turn-On Time	V _{DD} =-30V, R _L =7.5Ω, I _D =-3.0A, V _{GEN} =-10V, R _G =3Ω		10	20	ns	
T _r				6	10		
t _{d(off)}			Turn-Off Time		30		45
T _f					12		25

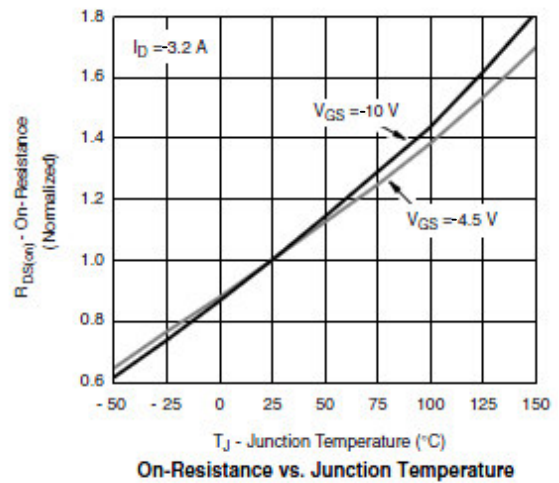
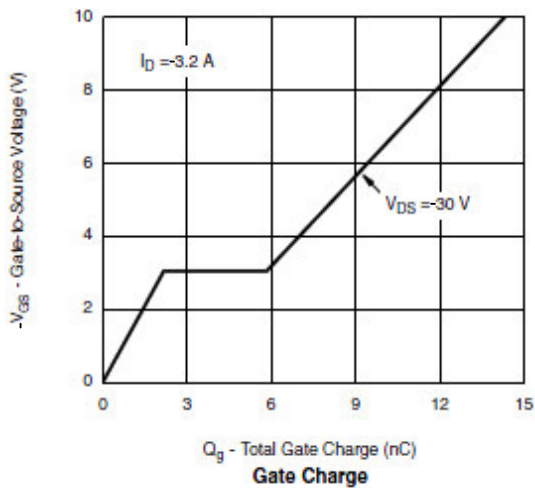
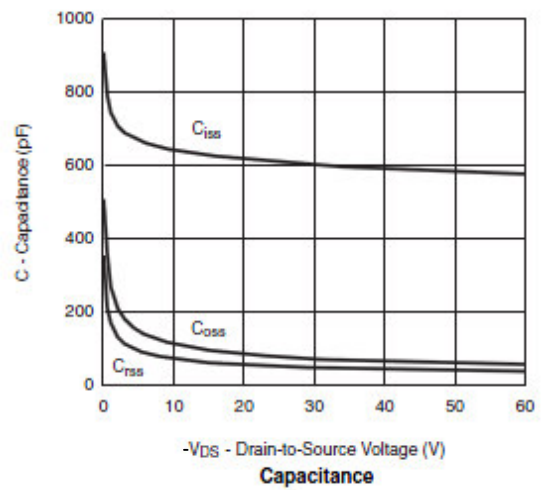
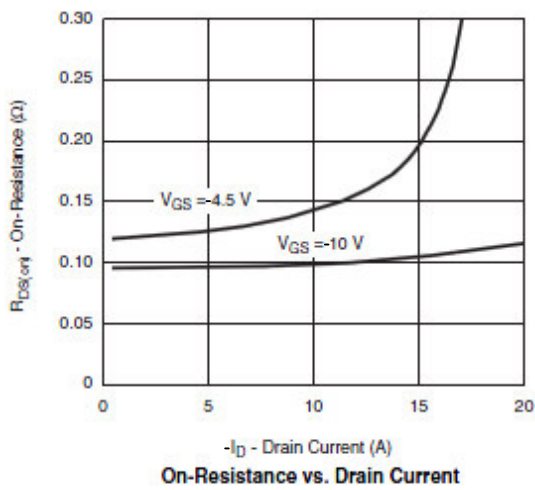
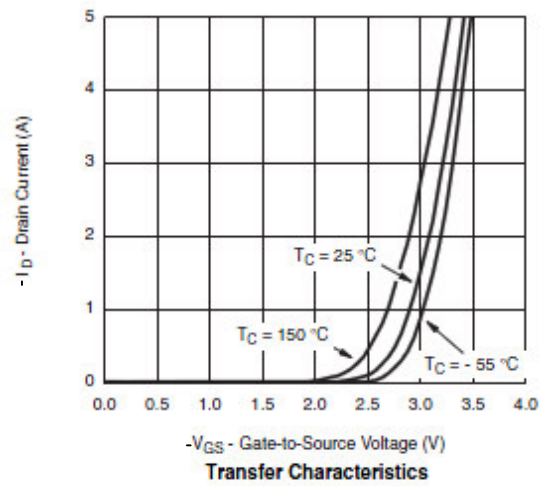
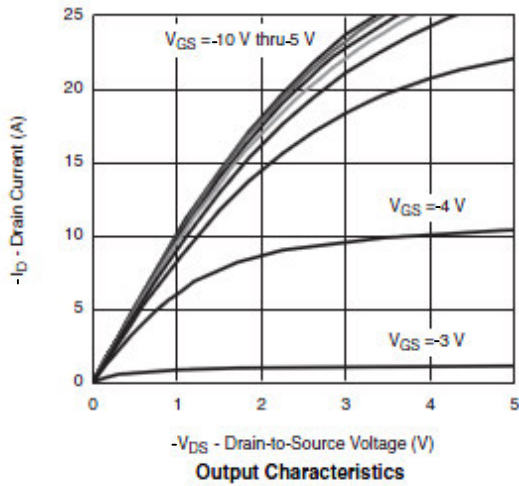
Typical Performance Characteristics (N-Channel)



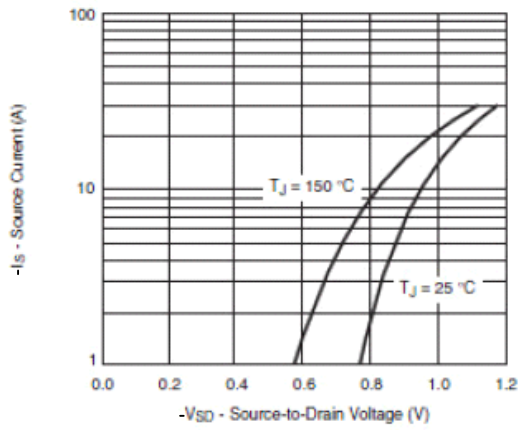
Typical Performance Characteristics (N-Channel Continue)



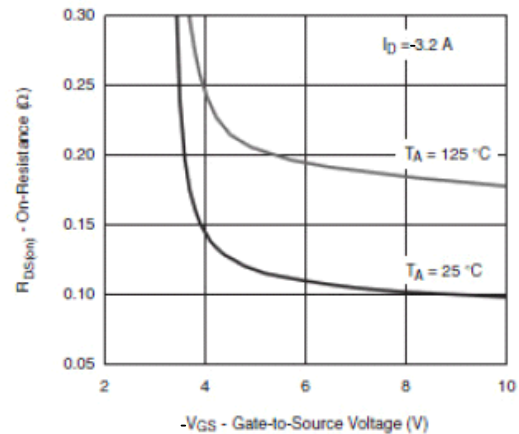
Typical Performance Characteristics (P-Channel)



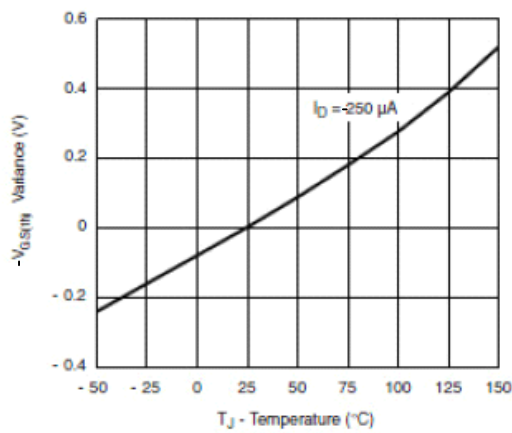
Typical Performance Characteristics (P-Channel Continue)



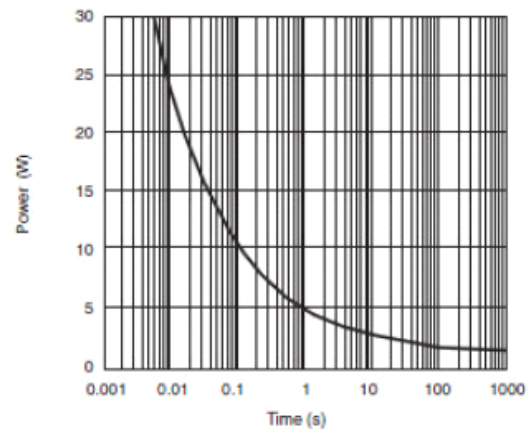
Source-Drain Diode Forward Voltage



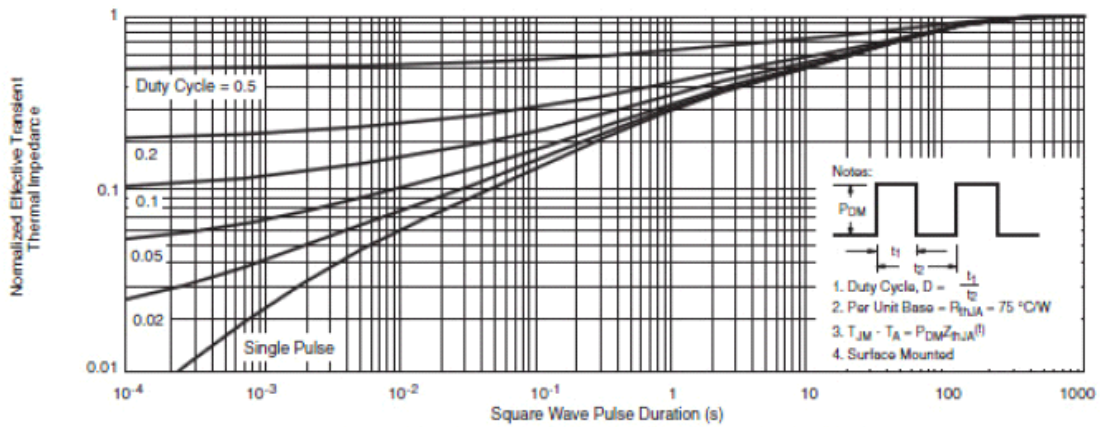
On-Resistance vs. Gate-to-Source Voltage



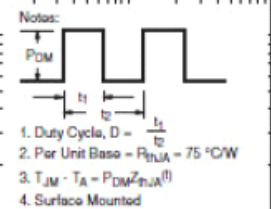
Threshold Voltage



Single Pulse Power, Junction-to-Ambient

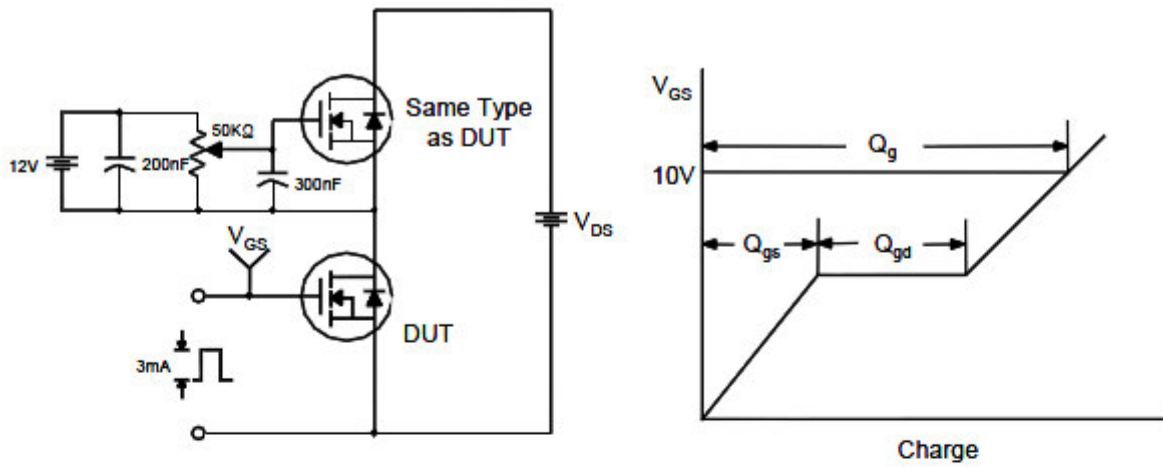


Normalized Thermal Transient Impedance, Junction-to-Ambient

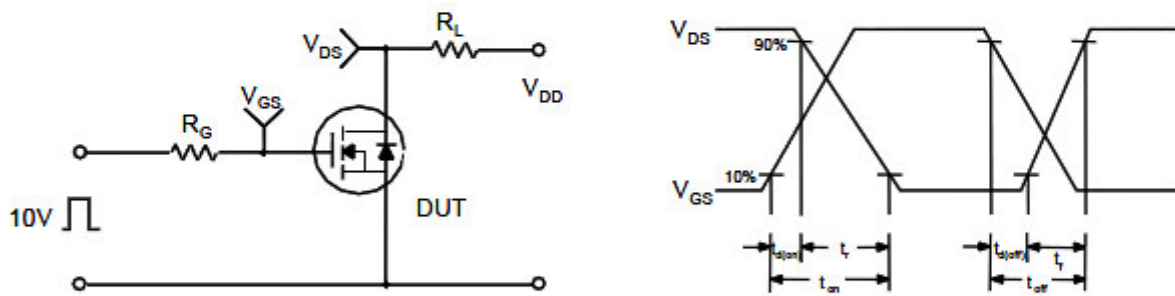


Typical Characteristics

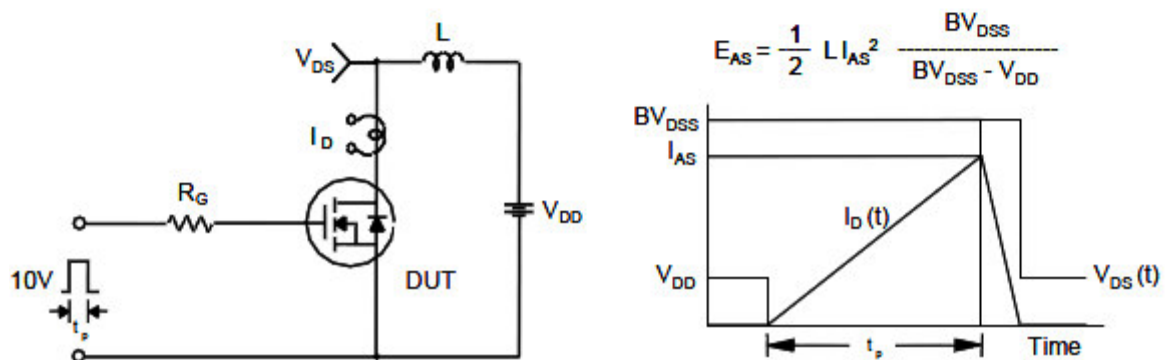
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

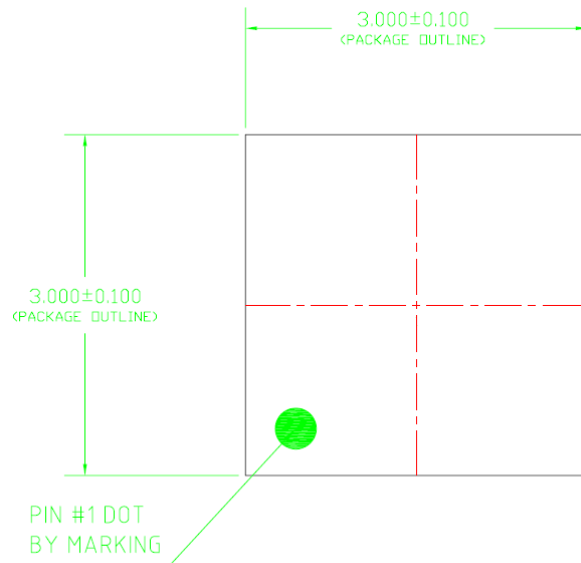


Unclamped Inductive Switching Test Circuit & Waveforms

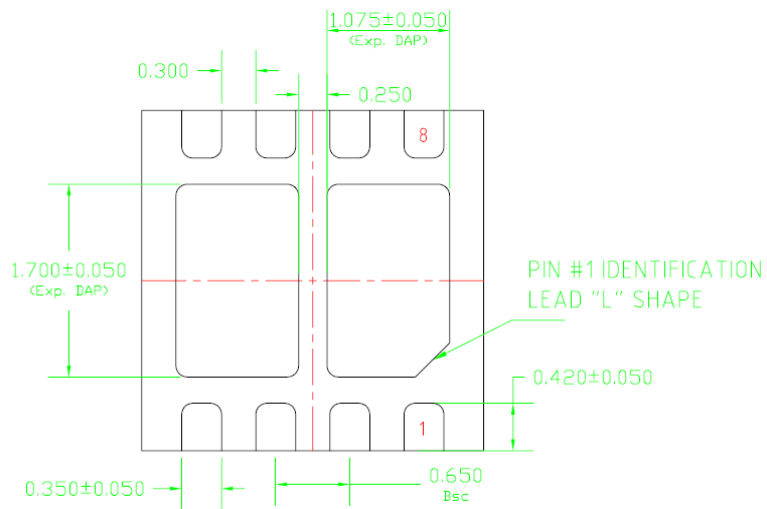


Package Dimension

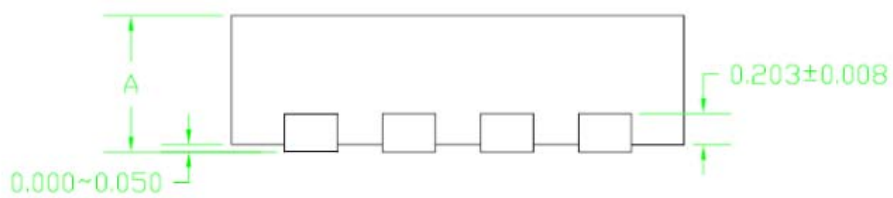
DFN3X3-8L



TOP VIEW







BOTTOM VIEW




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