

GSM3316W

60V N-Channel Enhancement Mode MOSFET

Product Description

GSM3316W, 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.

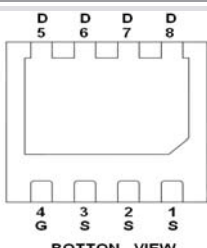
Features

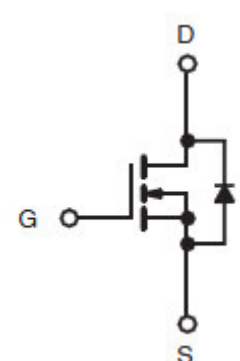
- 60V/8A, $R_{DS(ON)}=140m\Omega@V_{GS}=10V$
- 60V/6A, $R_{DS(ON)}=148m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN3X3-8L package design

Applications

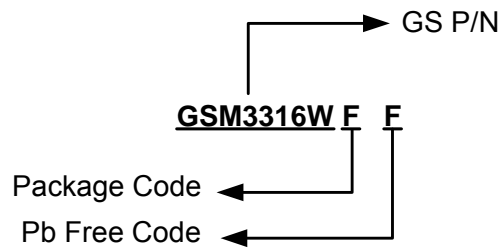
- DC/DC Converter
- Load Switch
- Power Management in Notebook Computer

Packages & Pin Assignments

GSM3316WFF (DFN3X3-8L)		
 <p style="text-align: center;">BOTTOM VIEW</p>		
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

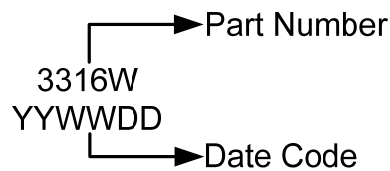


Ordering Information



Part Number	Package	Quantity Reel
GSM3316WFF	DFN3X3-8L	5000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

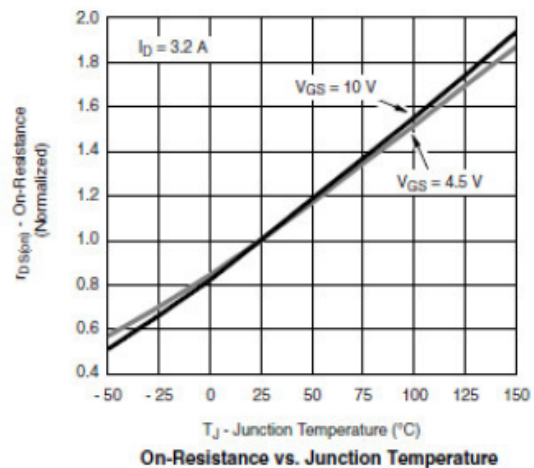
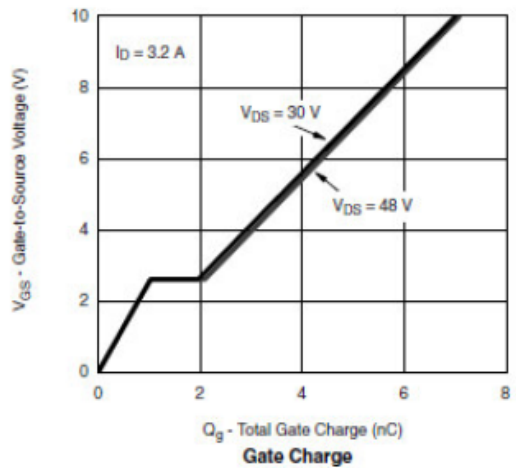
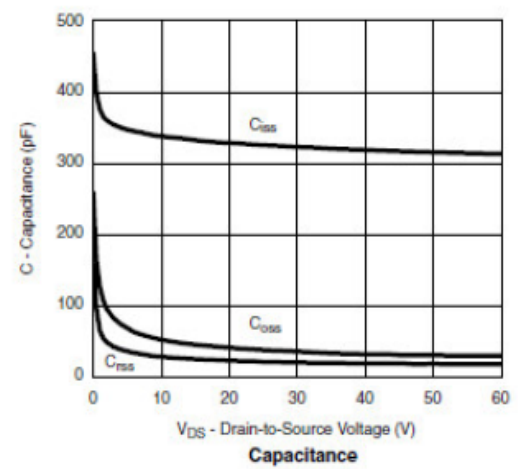
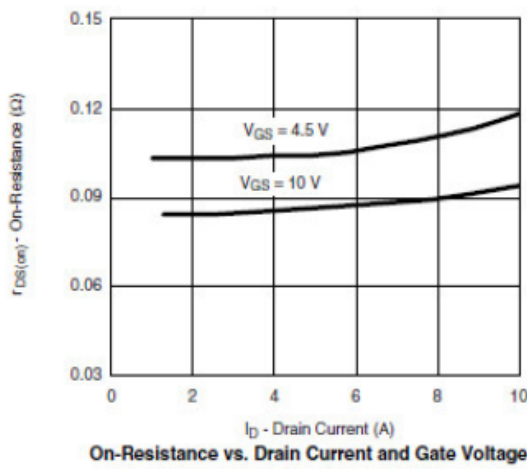
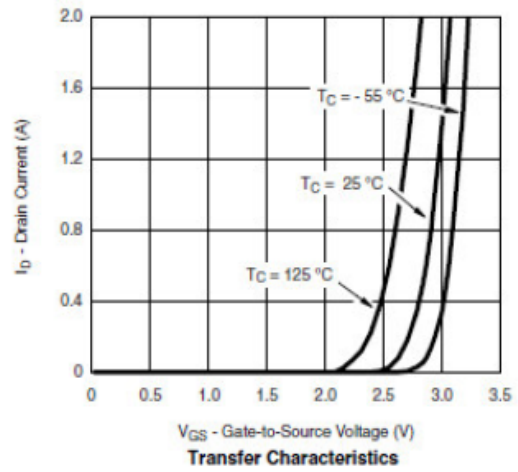
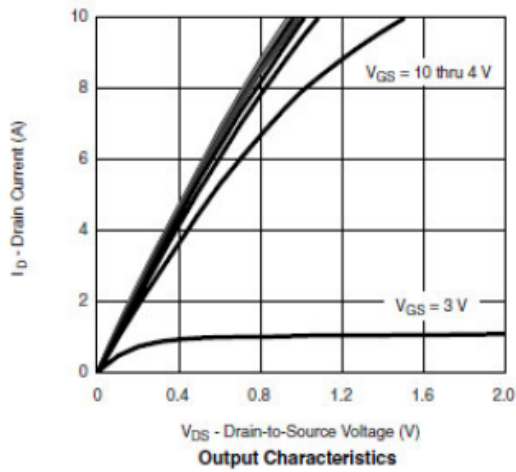
Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	60	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current (T _J =150°C)	T _A =25°C	8
		T _A =70°C	6
I _{DM}	Pulsed Drain Current	10	A
I _S	Continuous Source Current (Diode Conduction)	1.6	A
P _D	Power Dissipation	T _A =25°C	17
		T _A =70°C	8
P _{DSM}	Power Dissipation	T _A =25°C	3.5
		T _A =70°C	2.5
T _J	Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	120	°C/W

Electrical Characteristics

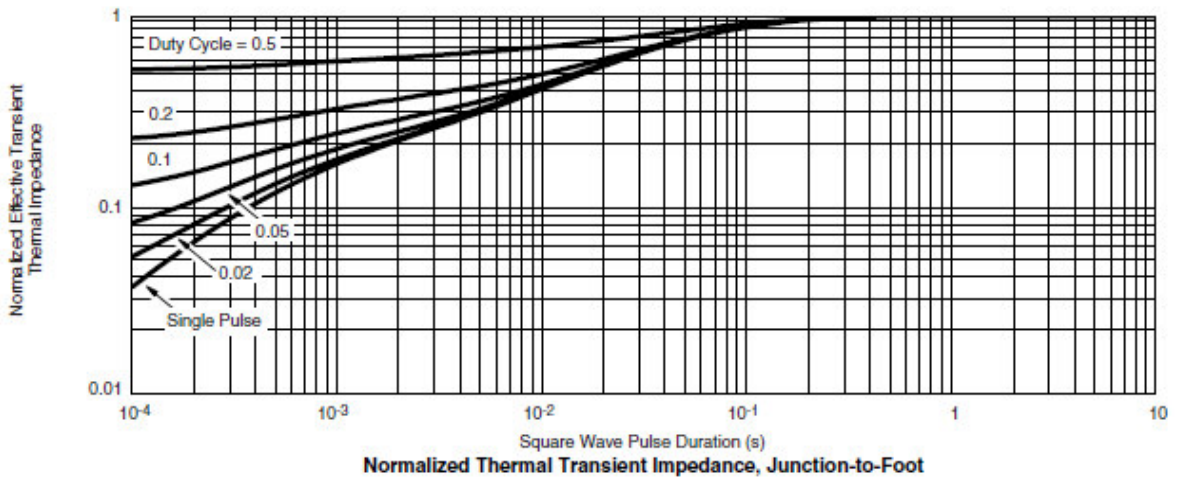
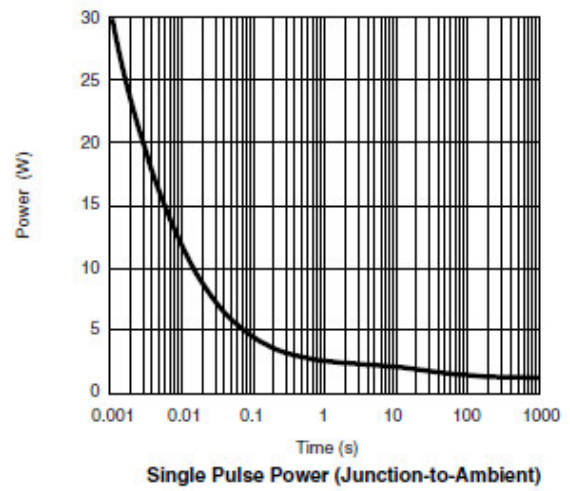
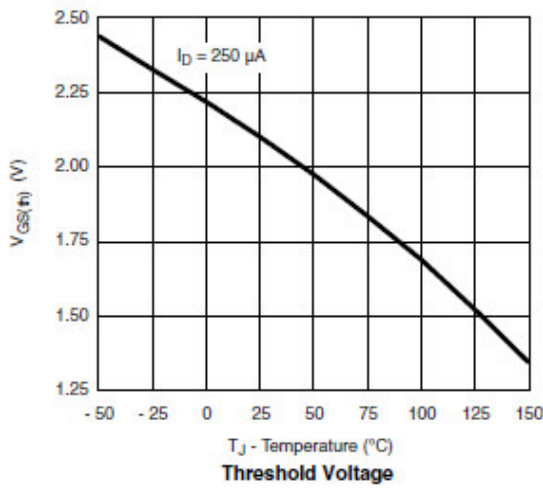
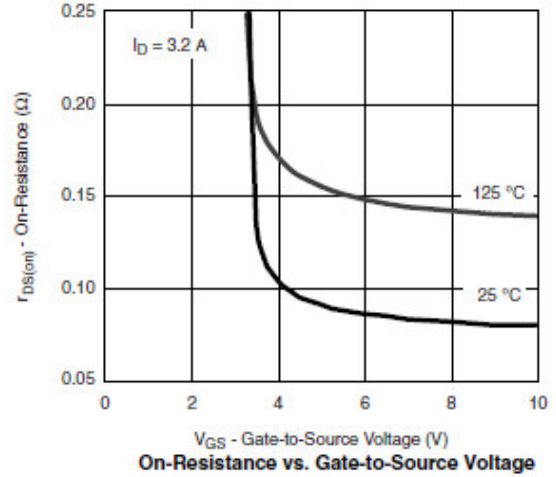
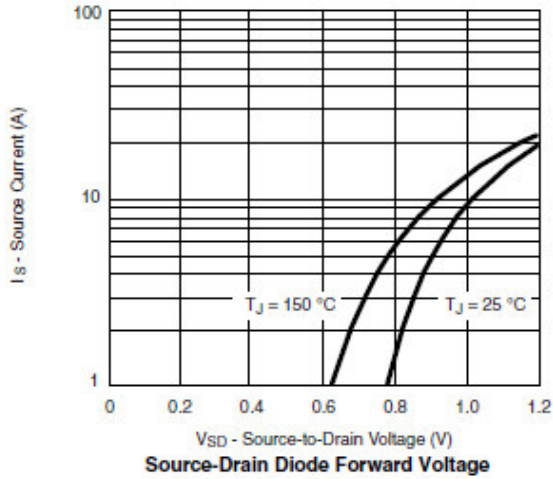
T_A=25°C Unless otherwise noted

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	0.7		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			10	
I _{D(ON)}	On-State Drain Current	V _{DS} ≥5V, V _{GS} =10V	10			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =8A		128	140	mΩ
		V _{GS} =4.5V, I _D =6A		136	148	
g _{FS}	Forward Transconductance	V _{DS} =15V, I _D =2.0A		12		S
V _{SD}	Diode Forward Voltage	I _S =2.0A, V _{GS} =0V		0.85	1.2	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _D =3.0A		6	15	nC
Q _{gs}	Gate-Source Charge			1.5		
Q _{gd}	Gate-Drain Charge			2.0		
C _{iss}	Input Capacitance	V _{DS} =35V, V _{GS} =0V, f=1MHz		350		pF
C _{oss}	Output Capacitance			30		
C _{rss}	Reverse Transfer Capacitance			20		
t _{d(on)}	Turn-On Time	V _{DD} =30V, R _L =10Ω, I _D =5.0A, V _{GEN} =10V, R _G =3.0Ω		6	12	ns
t _r				6	12	
t _{d(off)}	Turn-Off Time			12	20	
t _f				4	10	

Typical Performance Characteristics

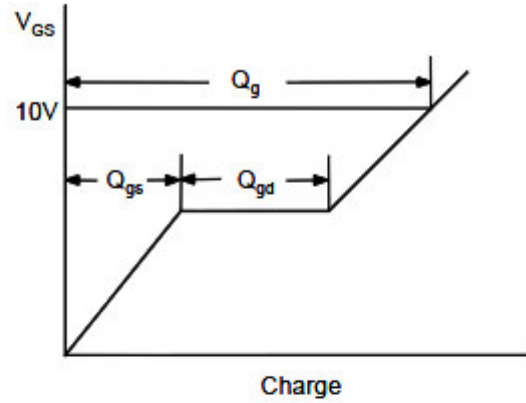
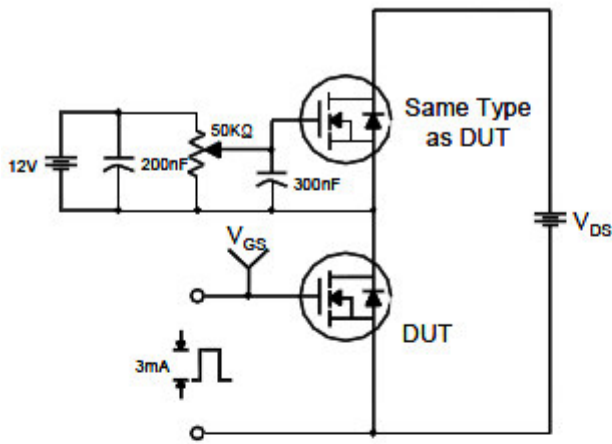


Typical Performance Characteristics (Continue)

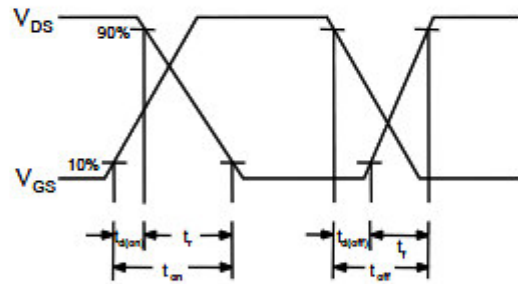
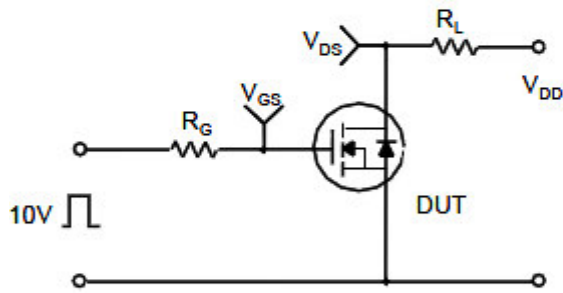


Typical Performance Characteristics (Continue)

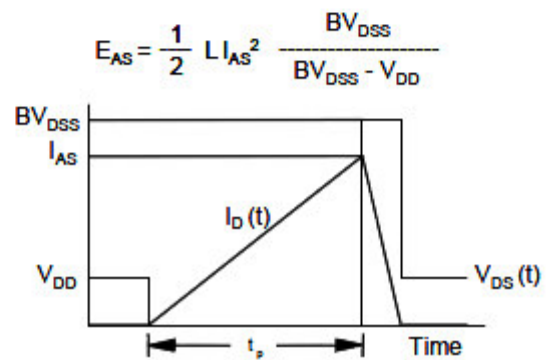
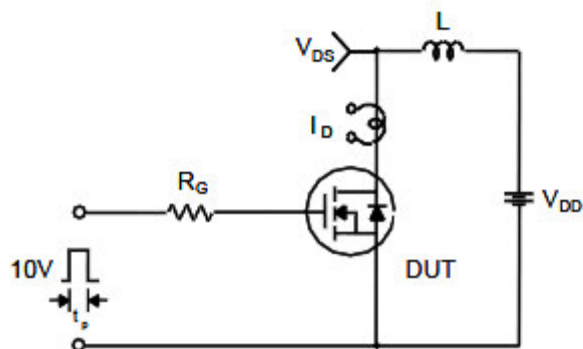
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

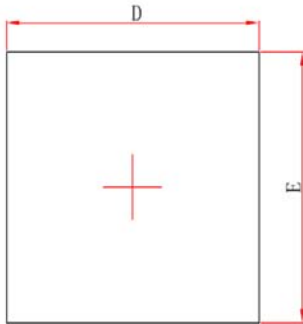


Unclamped Inductive Switching Test Circuit & Waveforms

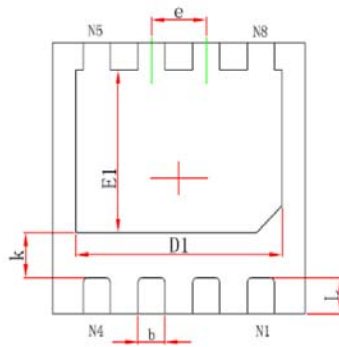


Package Dimension

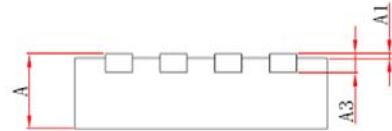
DFN3x3-8L



Top View



Bottom View







Side View

Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.800	0.900	0.031	0.035
A1	0.000	0.05	0.000	0.002
A3	0.203REF		0.008REF	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.350	2.550	0.093	0.100
E1	1.700	1.90	0.067	0.075
k	0.450	0.550	0.018	0.022
b	0.270	0.370	0.011	0.015
e	0.650TYP		0.026TYP	
L	0.324	0.476	0.013	0.019


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