

GSM3415

20V P-Channel Enhancement Mode MOSFET

Product Description

GSM3415, 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.

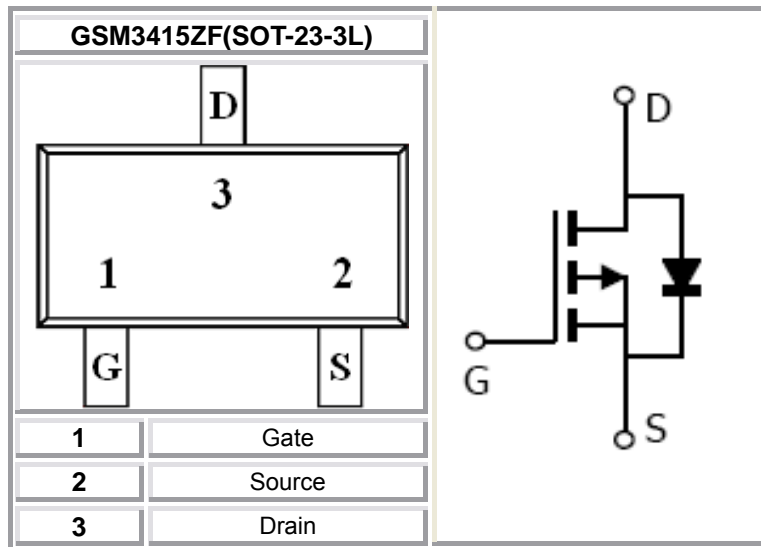
Features

- -20V/-4.9A, $R_{DS(ON)}=45m\Omega@V_{GS}=-4.5V$
- -20V/-3.4A, $R_{DS(ON)}=58m\Omega@V_{GS}=-2.5V$
- -20V/-2.2A, $R_{DS(ON)}=85m\Omega@V_{GS}=-1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

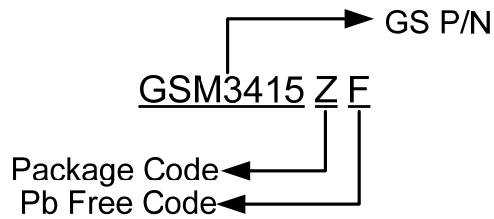
Applications

- Portable Equipment
- Battery Powered System
- Net Working System

Packages & Pin Assignments

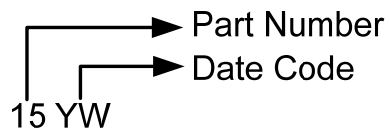


Ordering Information



Part Number	Package	Quantity Reel
GSM3415ZF	SOT-23-3L	3000 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

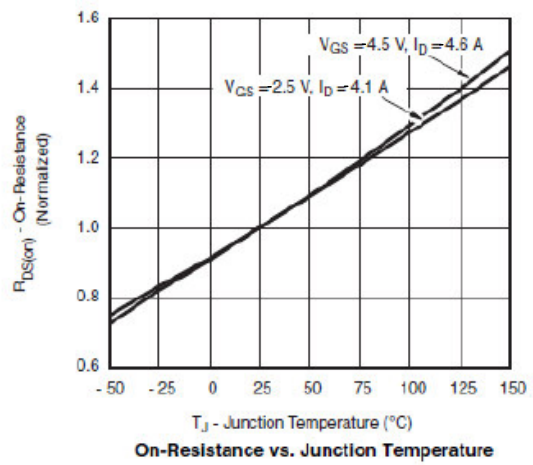
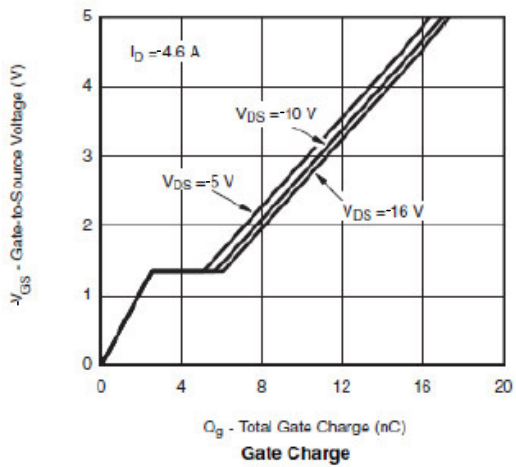
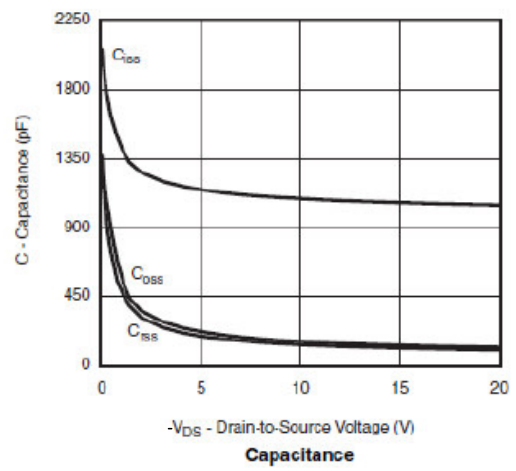
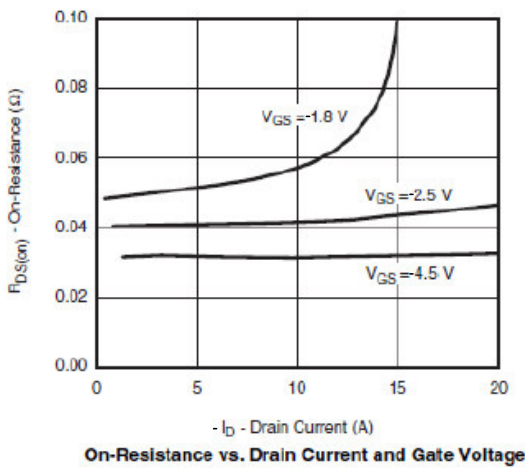
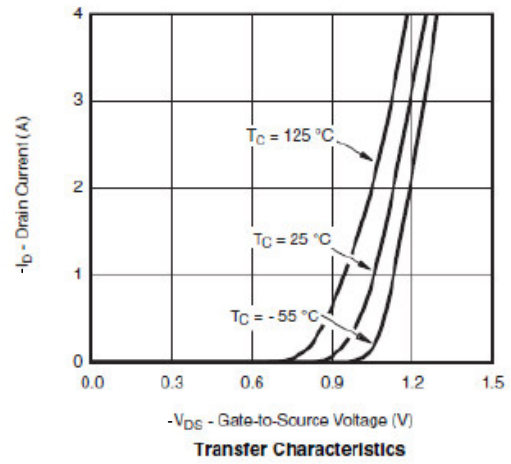
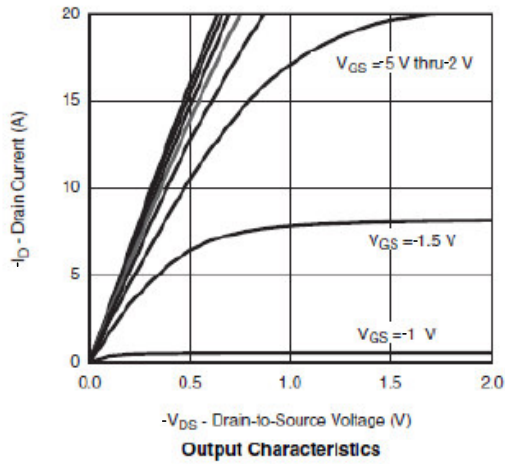
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	-20	V	
V _{GSS}	Gate –Source Voltage	±12	V	
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	-4.9	A
		T _A =70°C	-3.9	
I _{DM}	Pulsed Drain Current	-10	A	
I _S	Continuous Source Current(Diode Conduction)	-1.6	A	
P _D	Power Dissipation	T _A =25°C	1.25	W
		T _A =70°C	0.8	
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

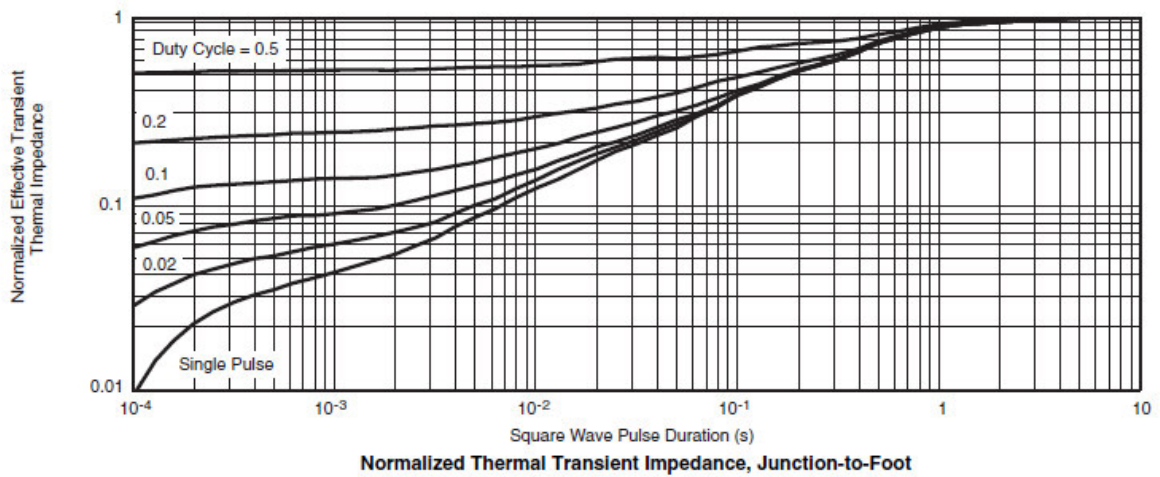
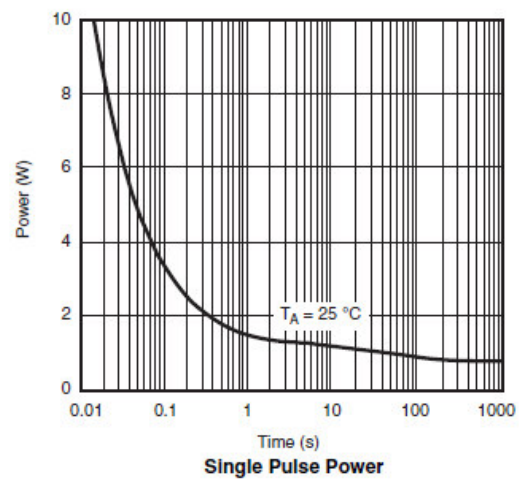
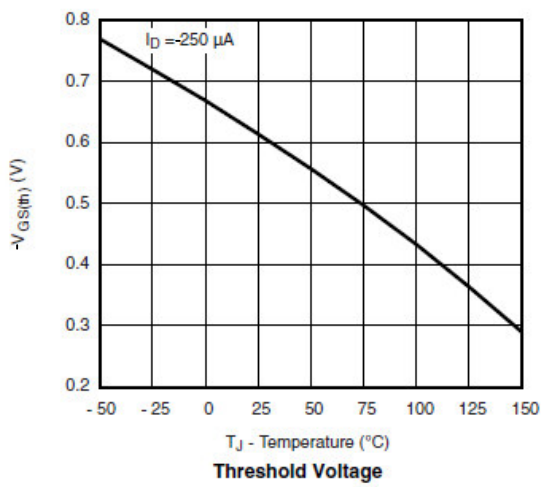
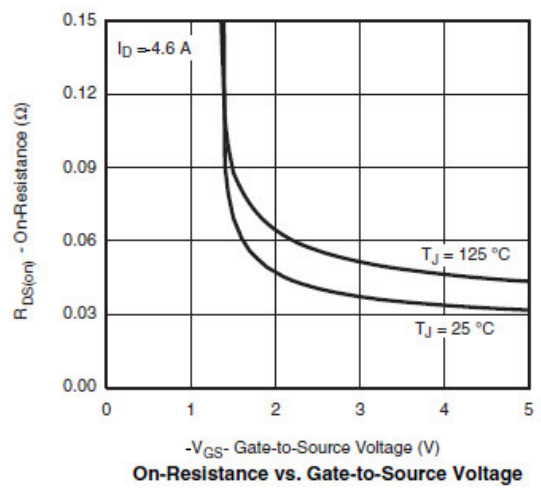
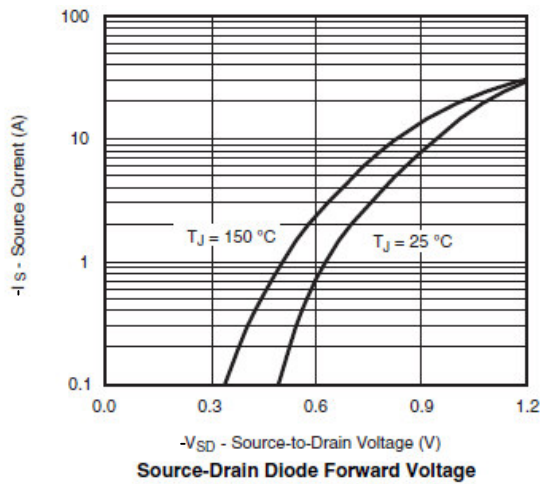
(T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.4		-0.9	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V			-1	μA
		V _{DS} =-16V, V _{GS} =0V T _J =85°C			-10	
I _{D(on)}	On-State Drain Current	V _{DS} ≥-5V, V _{GS} =-4.5V	-6			A
		V _{DS} ≤-5V, V _{GS} =-2.5V	-4			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = -4.5V, I _D =-4.9A		40	45	mΩ
		V _{GS} = -2.5V, I _D =-3.4A		50	58	
		V _{GS} = -1.8V, I _D =-2.2A		60	85	
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-3.6A		10		S
V _{SD}	Diode Forward Voltage	I _S =-1.6A, V _{GS} =0V		-0.85	-1.2	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-2.5V, I _D =-4.0A		10	18	nC
Q _{gs}	Gate-Source Charge			2.5		
Q _{gd}	Gate-Drain Charge			3.5		
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz		1050		pF
C _{oss}	Output Capacitance			165		
C _{rss}	Reverse Transfer Capacitance			135		
t _{d(on)}	Turn-On Time	V _{DD} =-10V, R _L =2.7Ω, I _D =-3.7A, V _{GEN} =-4.5V, R _G =1Ω		15	25	ns
t _r				25	40	
t _{d(off)}	Turn-Off Time			40	65	
t _f				15	25	

Typical Performance Characteristics

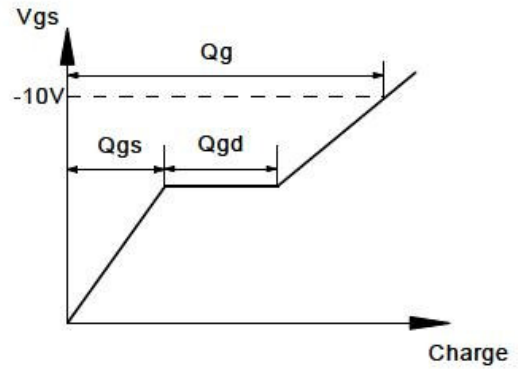
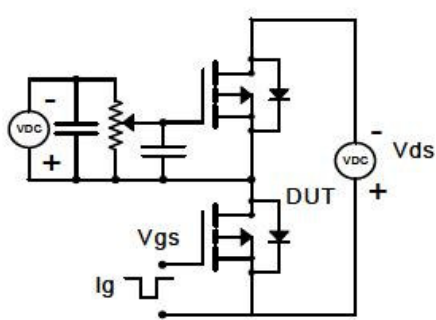


Typical Performance Characteristics (continue)

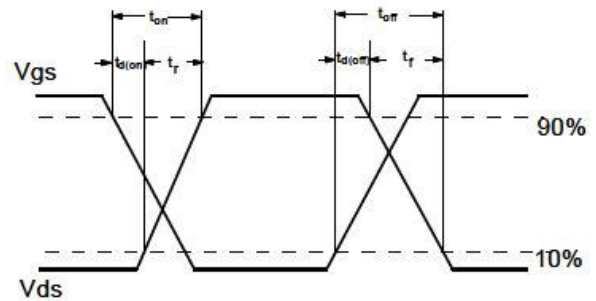
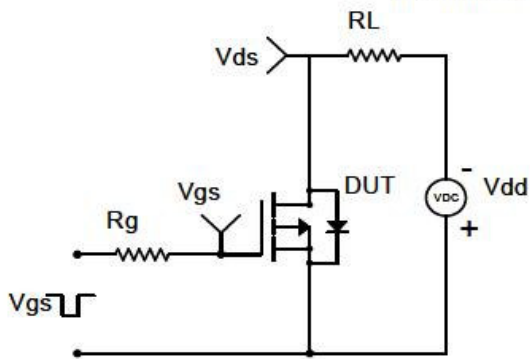


Typical Performance Characteristics (continue)

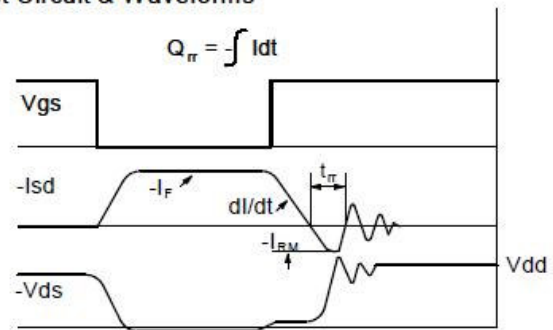
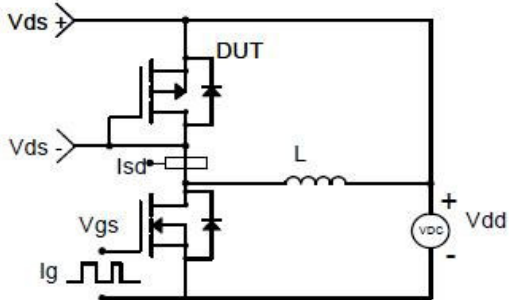
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

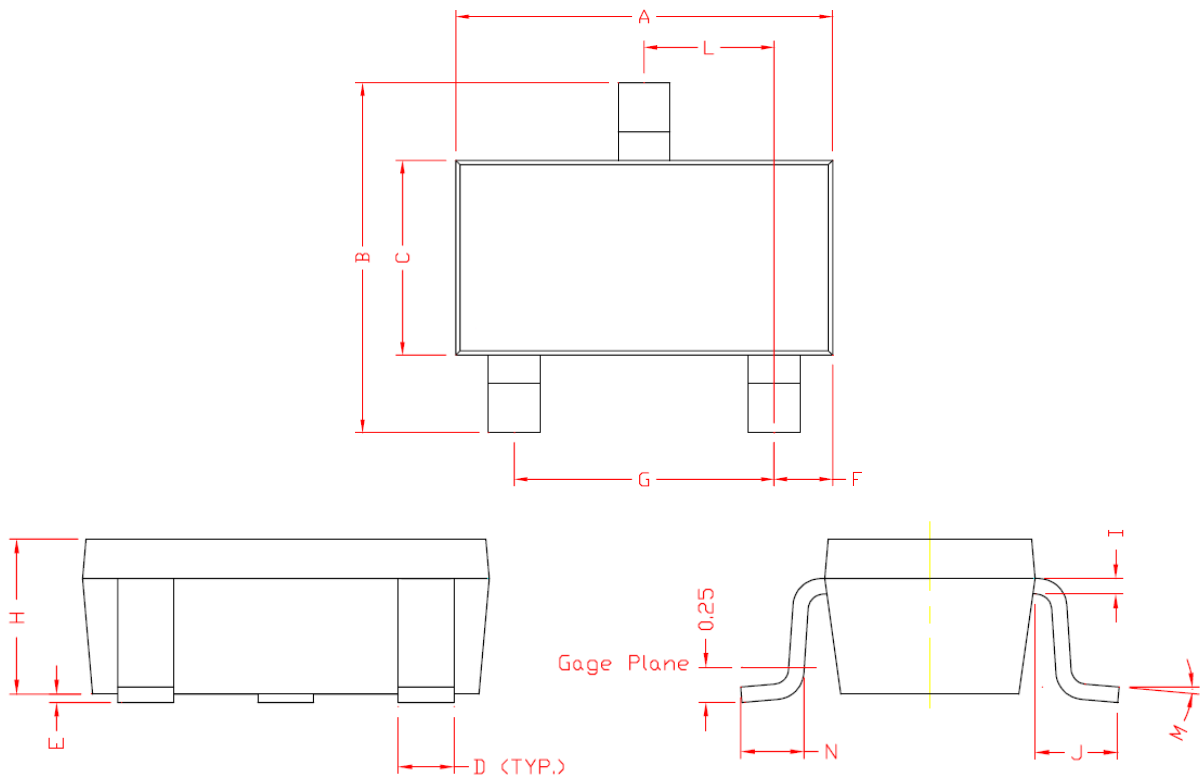


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOT-23-3L







Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.70	3.10	0.106	0.122
B	2.40	2.80	0.094	0.110
C	1.40	1.60	0.055	0.062
D	0.35	0.50	0.013	0.019
E	0.01	0.10	0.0003	0.003
F	0.45	0.55	0.017	0.021
N	0.30	0.60	0.011	0.023
G	2.10 (REF)		0.082 (REF)	
H	1.00	1.30	0.039	0.051
I	0.10	0.20	0.003	0.007
J	0.40	-	0.015	-
L	0.95	1.15	0.037	0.045
M	0°	10°	0°	10°



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