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

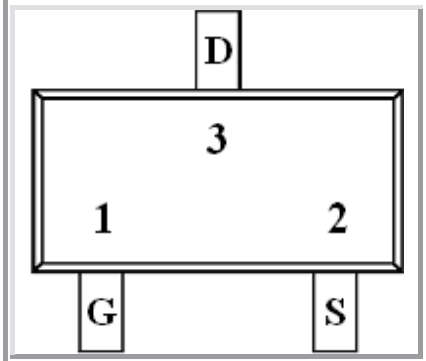
- -20V/-4.2A,$R_{DS(ON)}$=38mΩ@V_{GS}=-4.5V
- -20V/-3.8A,$R_{DS(ON)}$=46mΩ@V_{GS}=-2.5V
- -20V/-2.4A,$R_{DS(ON)}$=62mΩ@V_{GS}=-1.8V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

Applications

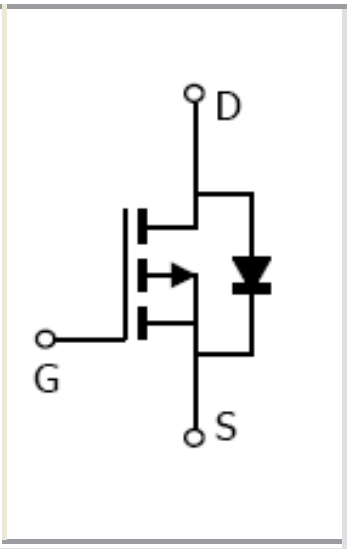
- Portable Equipment
- Battery Powered System
- Net Working System

Packages & Pin Assignments

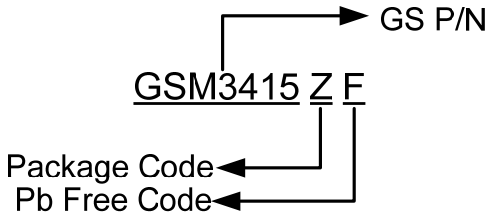
GSM3415ZF(SOT-23-3L)



1	Gate
2	Source
3	Drain

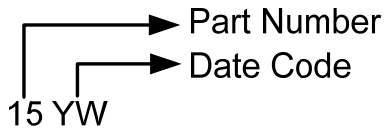


Ordering Information



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

Marking Information



Absolute Maximum Ratings

(T_A=25ºC unless otherwise noted)

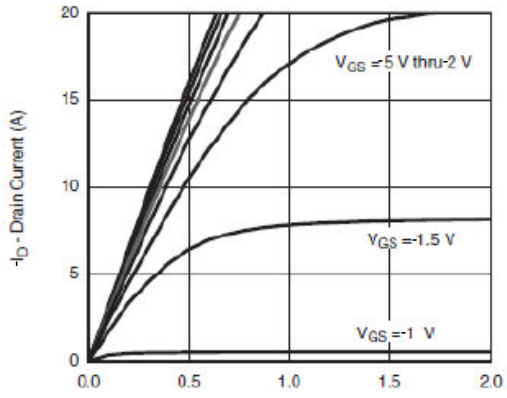
Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate –Source Voltage		±12	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25ºC	-4.2	A
		T_A=70ºC	-2.4	
I_{DM}	Pulsed Drain Current		-10	A
I_S	Continuous Source Current(Diode Conduction)		-1.6	A
P_D	Power Dissipation	T_A=25ºC	1.25	W
		T_A=70ºC	0.8	
T_J	Operating Junction Temperature		150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		120	ºC/ W

Electrical Characteristics

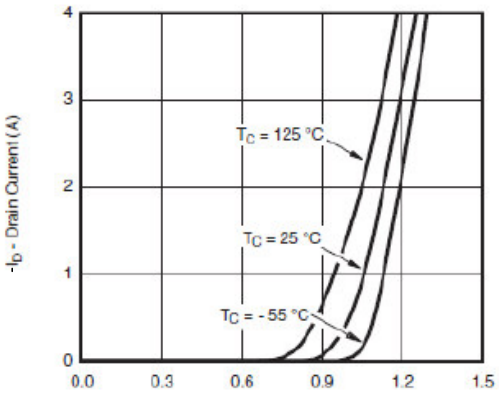
(T_A=25ºC unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-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	uA
		V_{DS}=-16V,V_{GS}=0V TJ=85℃			-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=-4.2A		32	38	mΩ
		V_{GS} =-2.5V,I_D=-3.8A		38	46	
		V_{GS} =-1.8V,I_D=-2.4A		48	62	
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	

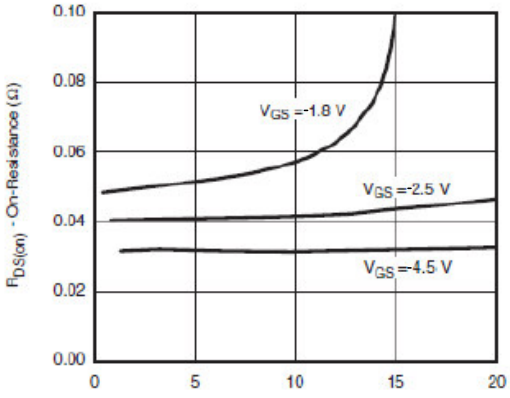
Typical Performance Characteristics



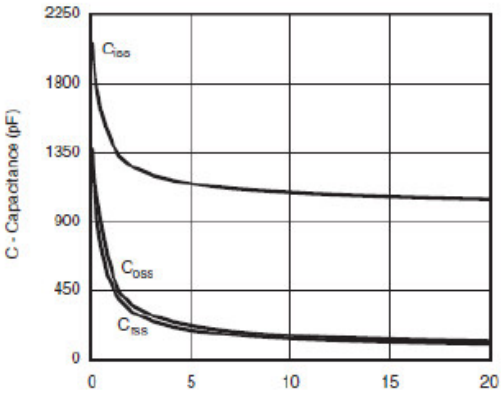
Output Characteristics



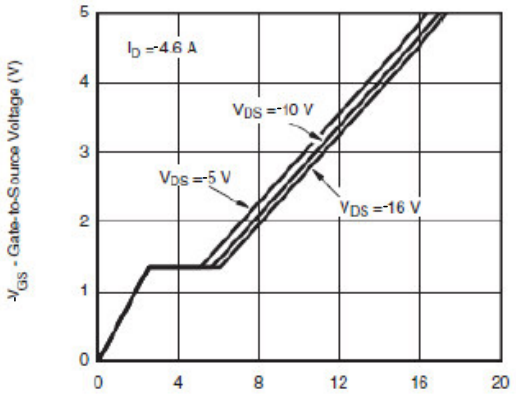
Transfer Characteristics



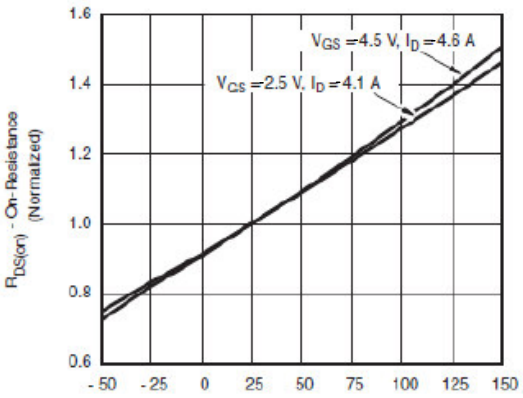
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

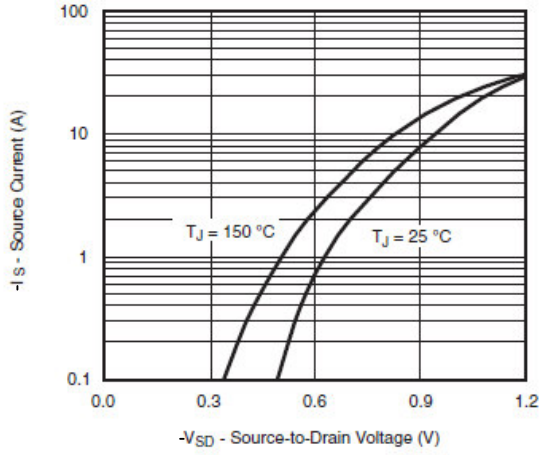


Gate Charge

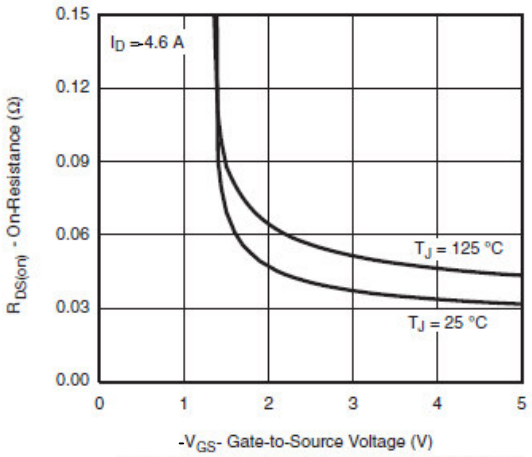


On-Resistance vs. Junction Temperature

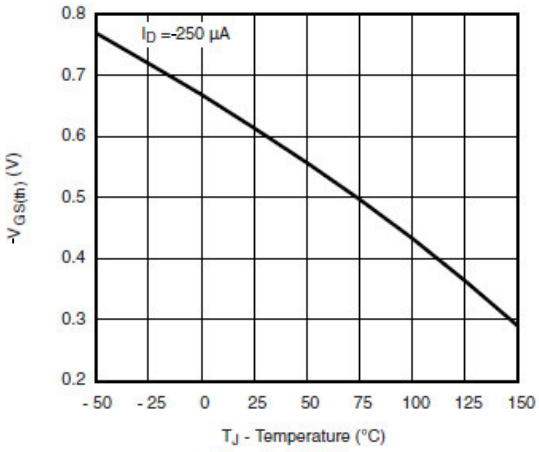
Typical Performance Characteristics (continue)



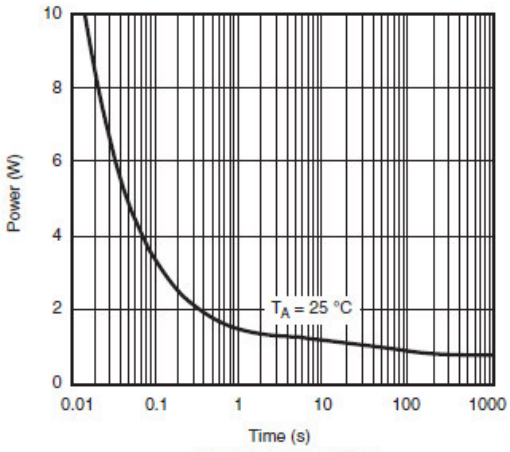
Source-Drain Diode Forward Voltage



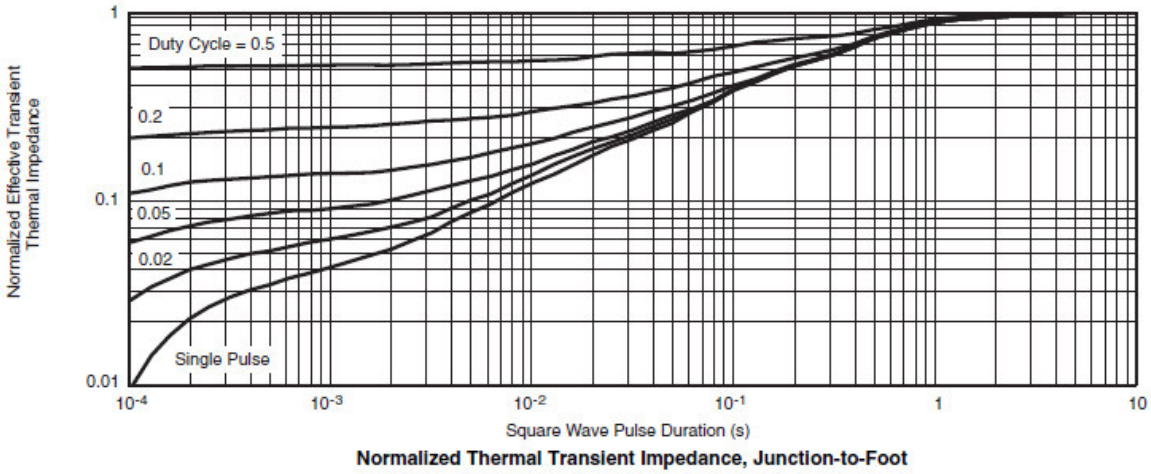
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



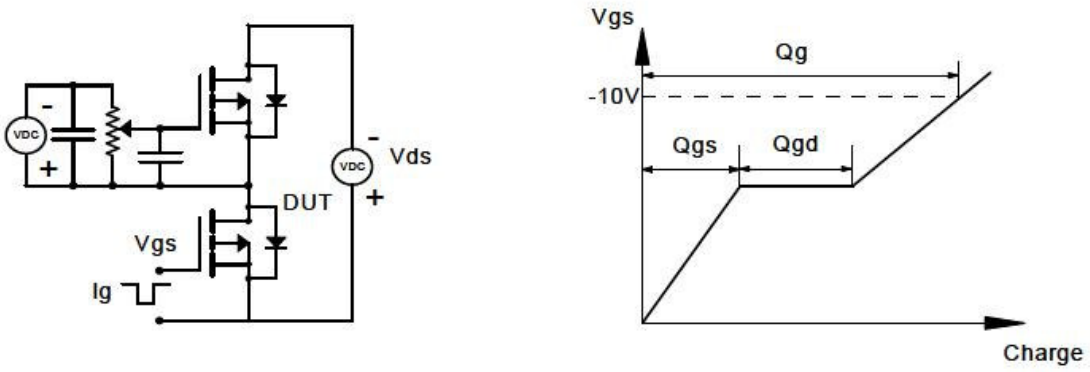
Single Pulse Power



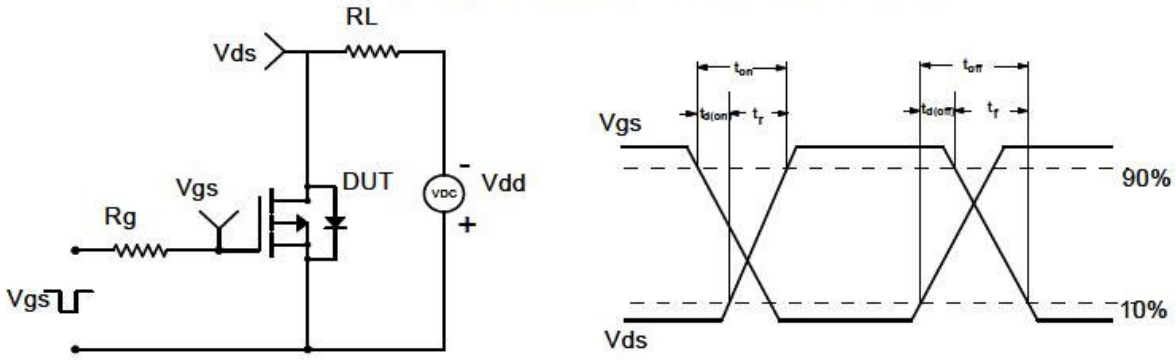
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Performance Characteristics (continue)

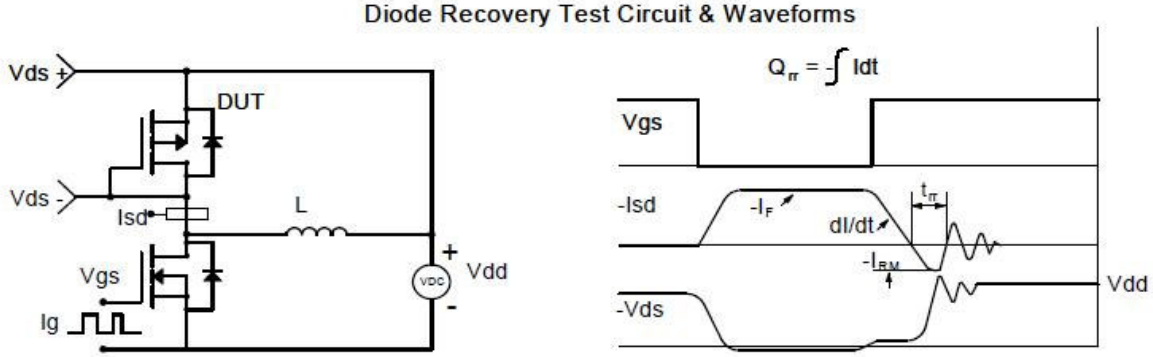
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

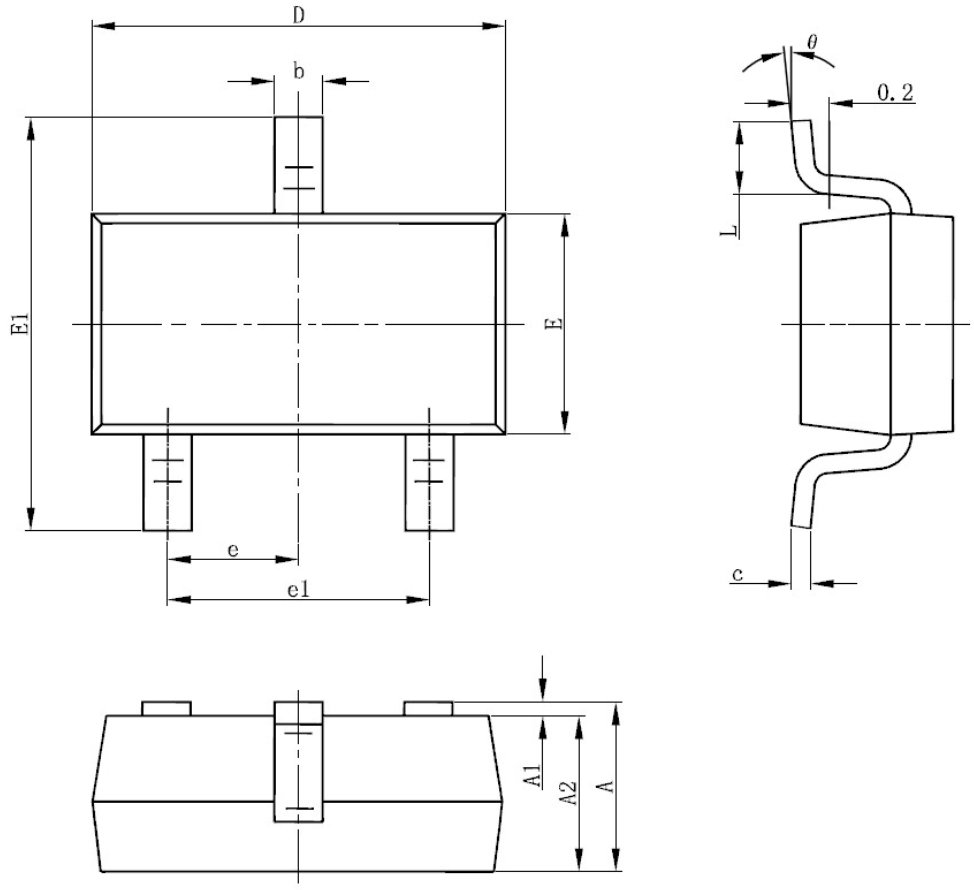


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOT-23-3L



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.05	1.25	0.041	0.049
A1	0	0.1	0	0.004
A2	1.05	1.15	0.041	0.045
b	0.3	0.4	0.012	0.016
c	0.1	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.950 (TYP)		0.037 (TYP)	
e1	1.8	2	0.071	0.079
L	0.700 REF		0.028 REF	
L1	0.3	0.6	0.012	0.024
Q	0°	8°	0°	8°

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