

GSM3402

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM3402, 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.

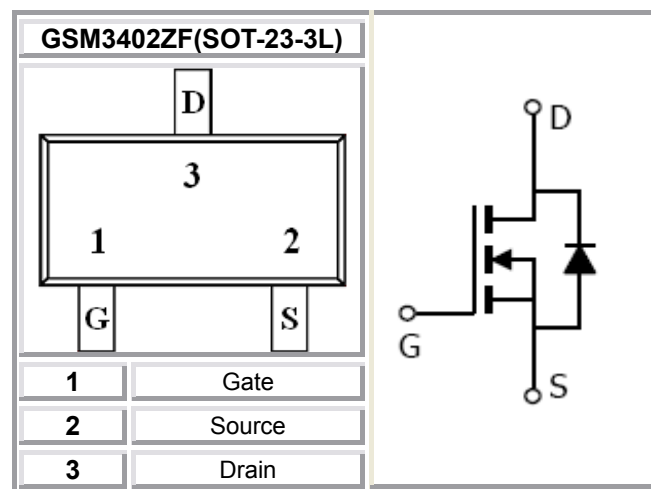
Features

- 30V/4.0A, $R_{DS(ON)}=75m\Omega@V_{GS}=10V$
- 30V/3.5A, $R_{DS(ON)}=80m\Omega@V_{GS}=4.5V$
- 30V/2.8A, $R_{DS(ON)}=100m\Omega@V_{GS}=2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-23-3L package design

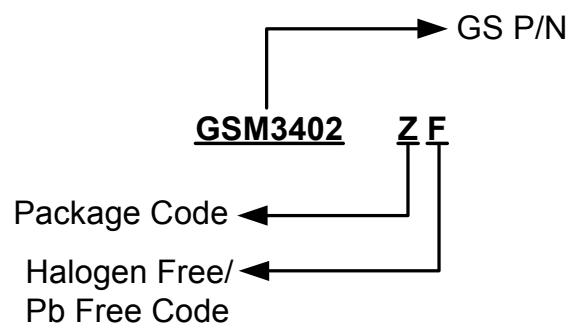
Applications

- Power Management in Note book
- LED Display
- DC-DC System
- LCD Panel

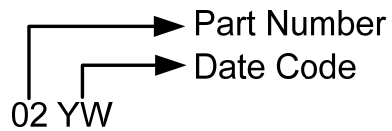
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking	Q'ty / Reel
GSM3402ZF	SOT-23-3L	00YW	3000 PCS

Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate -Source Voltage	±12	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	3.6
		T _A =70°C	3.0
I _{DM}	Pulsed Drain Current	15	A
I _S	Continuous Source Current(Diode Conduction)	1.7	A
P _D	Power Dissipation	T _A =25°C	2.0
		T _A =70°C	1.3
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

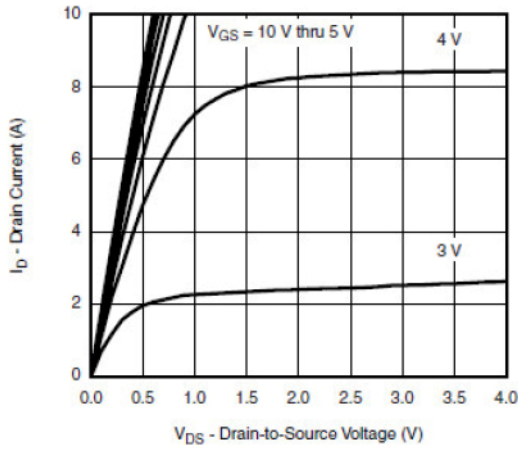
Electrical Characteristics

(T_A=25°C unless otherwise noted)

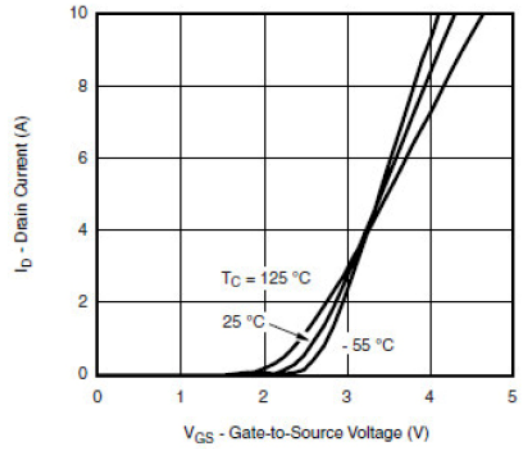
Symbol	Parameter	Conditions	Min.	Typ	Max.	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.3		1.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 24V, V _{GS} =0V			1	uA
		V _{DS} = 24V, V _{GS} =0V, T _J =85°C			30	
I _{D(on)}	On-State Drain Current	V _{DS} ≥4.5V, V _{GS} =10V	30			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10.0V, I _D =4.0A		65	75	mΩ
		V _{GS} =4.5V, I _D =3.5A		70	80	
		V _{GS} =2.5V, I _D =2.8A		90	100	
g _{fs}	Forward Transconductance	V _{DS} =4.5V, I _D =2.5A		20		S
V _{SD}	Diode Forward Voltage	I _S =3.4A, V _{GS} =0V		0.8	1.2	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		280		pF
C _{oss}	Output Capacitance			40		
C _{rss}	Reverse Transfer Capacitance			20		
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D ≅3.6A		2.3	3	nC
Q _{gs}	Gate-Source Charge			1.0		
Q _{gd}	Gate-Drain Charge			0.6		
td(on)	Turn-On Time	V _{DD} =15V, R _L =15Ω, I _D ≅1.0A V _{GEN} =10V, R _G =6Ω		10	15	nS
Tr				12	20	
td(off)	Turn-Off Time			15	25	
Tf				10	15	

Typical Performance Characteristics

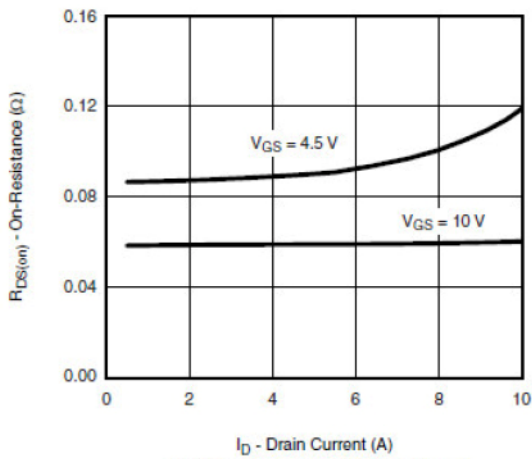
Output Characteristics



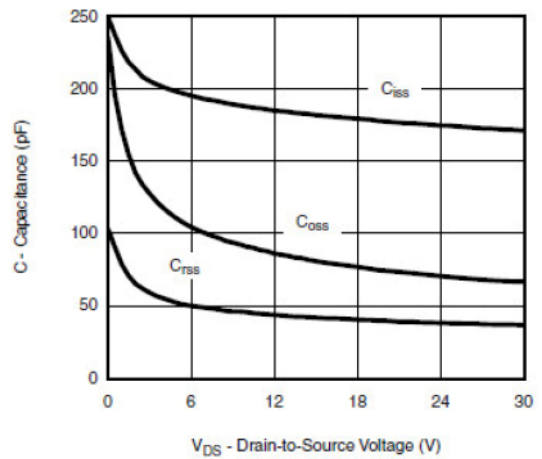
Transfer Characteristics



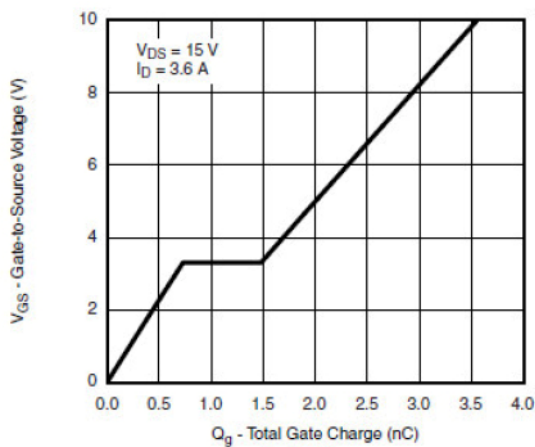
On-Resistance vs. Drain Current



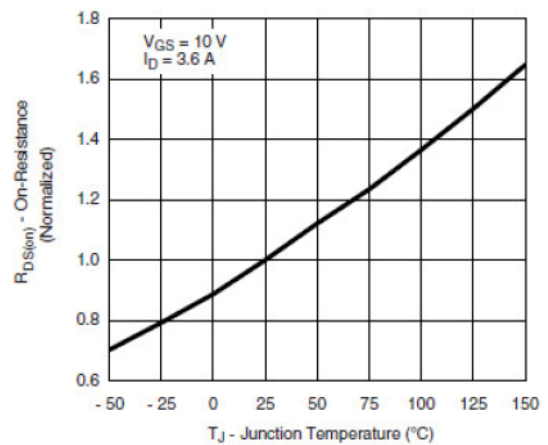
Capacitance



Gate Charge

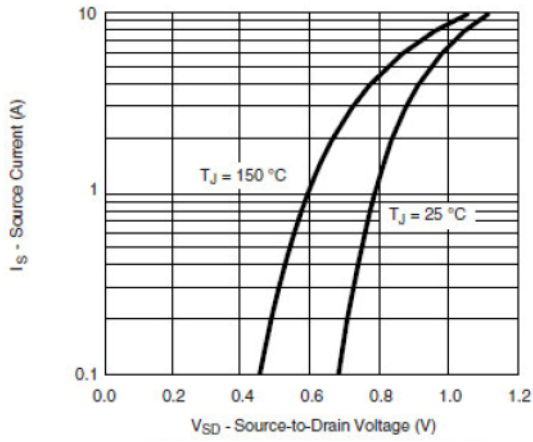


On-Resistance vs. Junction Temperature

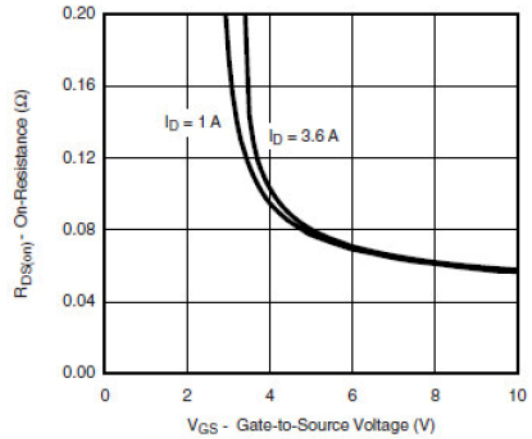


Typical Performance Characteristics (continue)

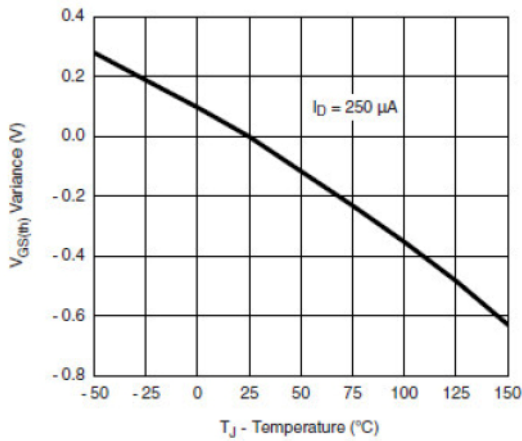
Source-Drain Diode Forward Voltage



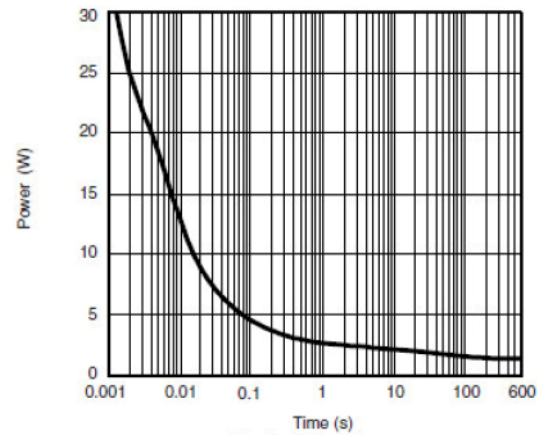
On-Resistance vs. Gate-to-Source Voltage



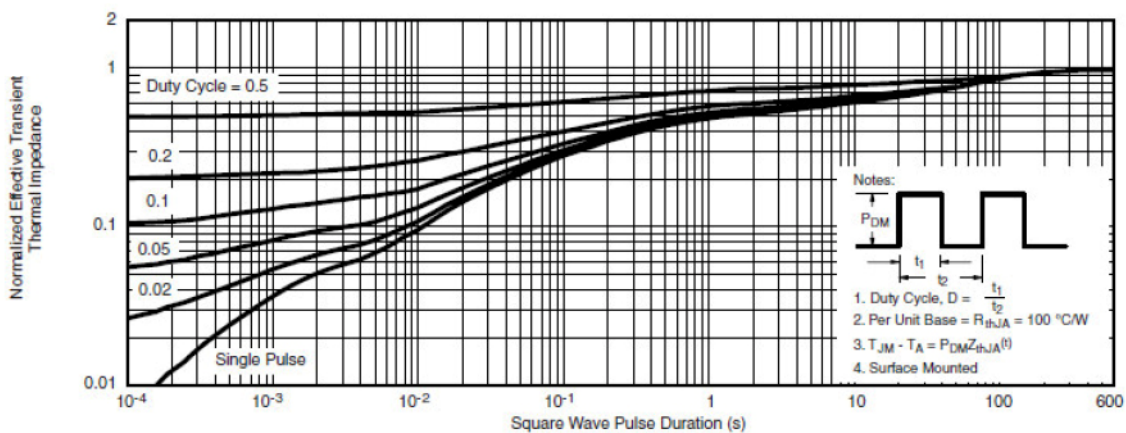
Threshold Voltage



Single Pulse Power

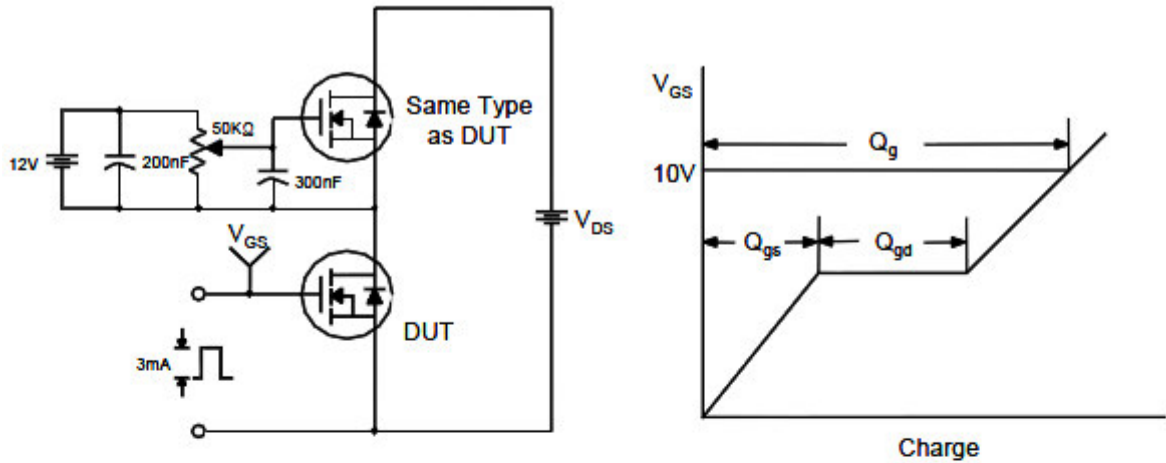


Normalized Thermal Transient Impedance, Junction-to-Ambient

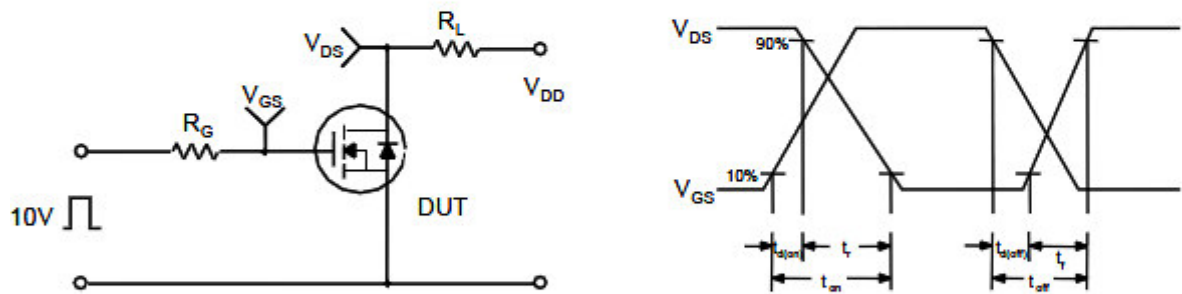


Typical Performance Characteristics (continue)

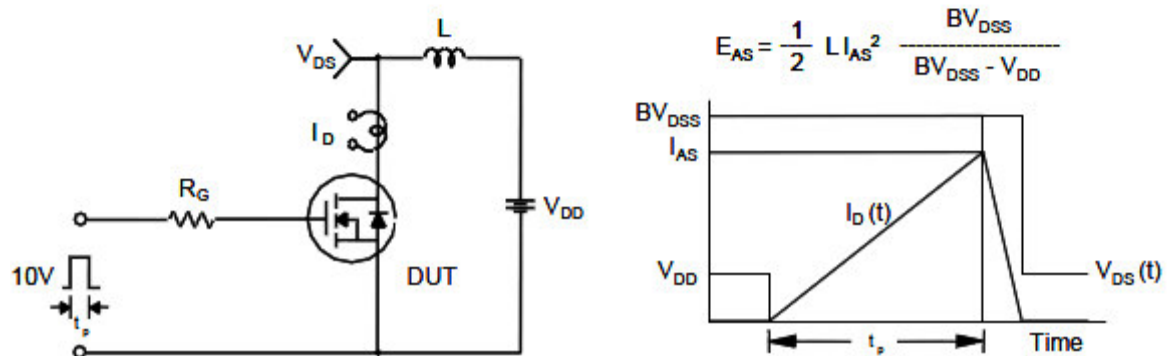
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

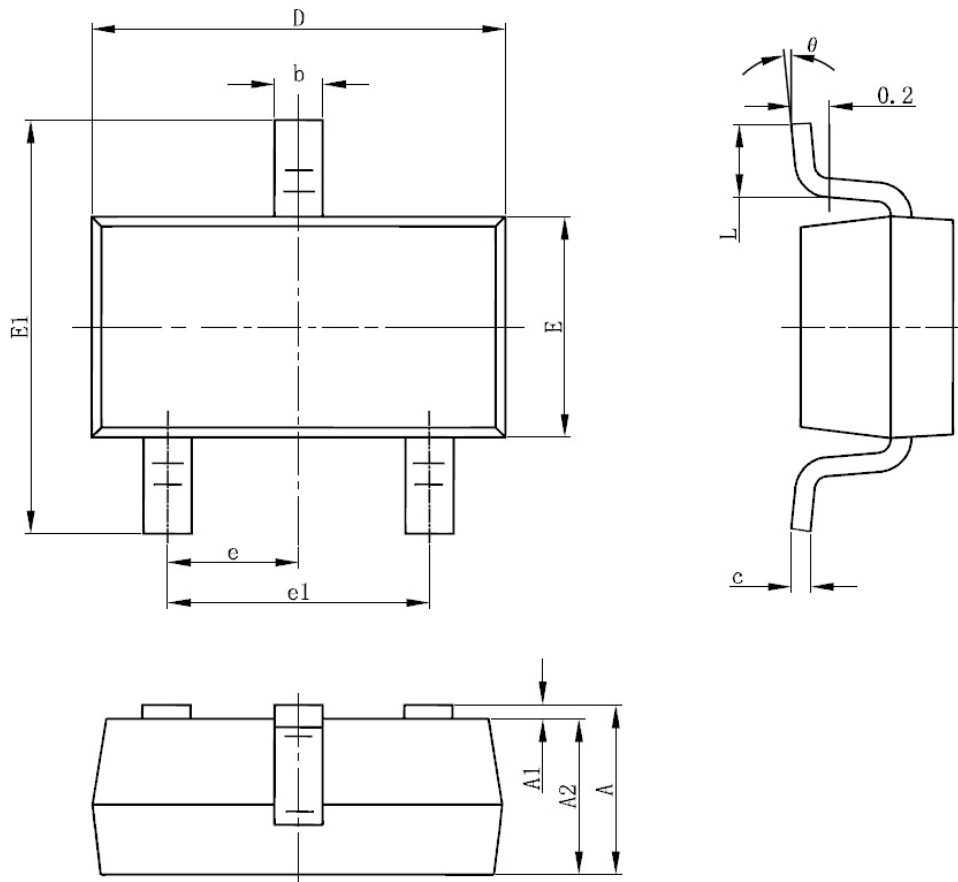


Unclamped Inductive Switching Test Circuit & Waveforms



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
θ	0°	8°	0°	8°



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