GSM2330

90V N-Channel Enhancement Mode MOSFET

Product Description

GSM2330, 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, 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

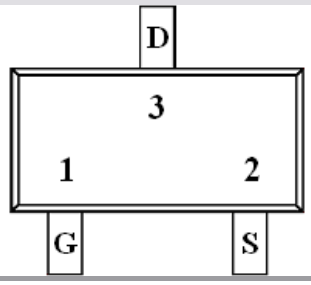
- 90V/2.8A,$R_{DS(ON)}$=190mΩ@V_{GS}=10V
- 90V/2.0A,$R_{DS(ON)}$=200mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

Applications

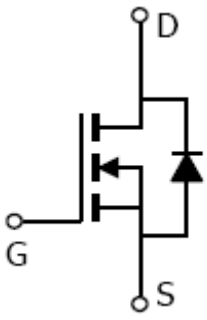
- DC/DC Converters
- Load Switch
- LED Backlighting in LCD TVs

Packages & Pin Assignments

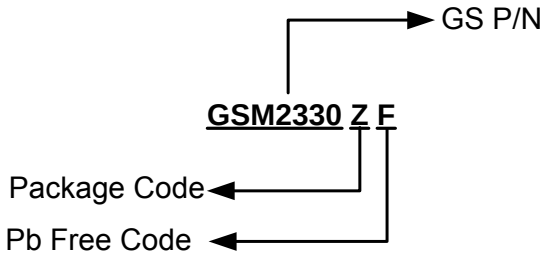
GSM2330ZF (SOT-23-3L)



Pin	Description
1	Gate
2	Source
3	Drain

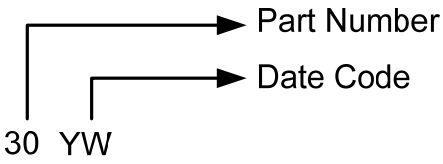


Ordering Information



Part Number	Package	Quantity Reel
GSM2330ZF	SOT-23-3L	3000 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25ºC unless otherwise noted)

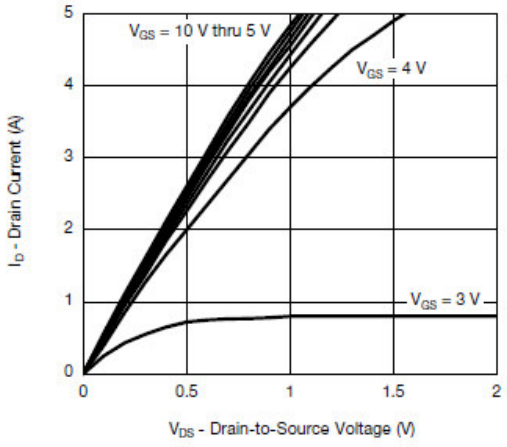
Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		90	V
V_{GSS}	Gate –Source Voltage		±20	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25ºC	2.8	A
		T_A=70ºC	2.0	
I_{DM}	Pulsed Drain Current		6	A
I_S	Continuous Source Current(Diode Conduction)		1.6	A
P_D	Power Dissipation	T_A=25ºC	1.25	W
		T_A=70ºC	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

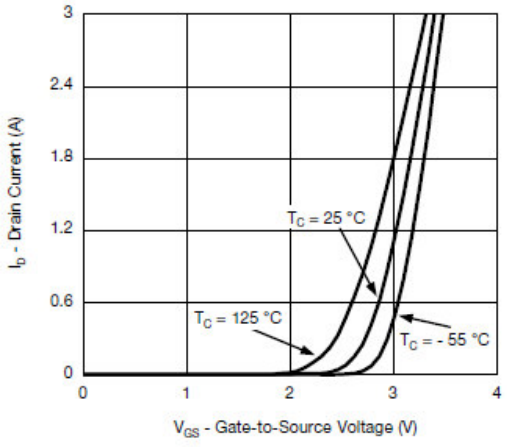
(T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	90			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	1.0		2.0	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=72V,V_{GS}=0V			1	uA
		V_{DS}=72V, V_{GS}=0V,T_J=85°C			10	
$I_{D(on)}$	On-State Drain Current	V_{DS}≥5V,V_{GS}=4.5V	6			A
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V,I_D=2.8A		170	190	mΩ
		V_{GS}=4.5V,I_D=2.0A		180	200	
g_{FS}	Forward Transconductance	V_{DS}=20V,I_D=1.5A		2		S
V_{SD}	Diode Forward Voltage	I_S=1.3A,V_{GS}=0V		0.85	1.2	V
Dynamic						
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V,f=1MHz		200		pF
C_{oss}	Output Capacitance			22		
C_{rss}	Reverse Transfer Capacitance			13		
Q_g	Total Gate Charge	V_{DS}=50V, V_{GS}=4.5V, I_D=1.6A		2.8	5.8	nC
Q_{gs}	Gate-Source Charge			0.75		
Q_{gd}	Gate-Drain Charge			1.4		
$t_{d(on)}$	Turn-On Time	V_{DD}=50V, R_L=39Ω,I_D=1.3A, V_{GEN}=4.5V,R_G=1Ω		25	50	ns
t_r				20	50	
$t_{d(off)}$	Turn-Off Time			15	30	
t_f				10	25	

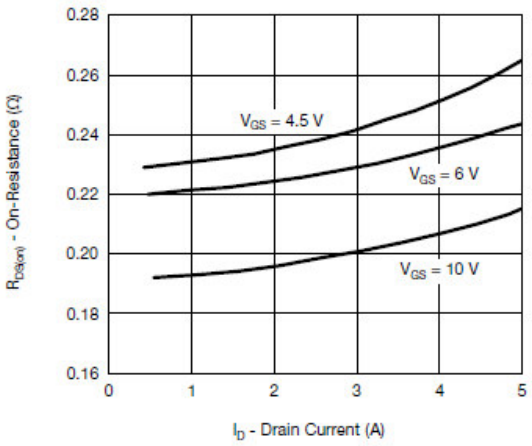
Typical Performance Characteristics



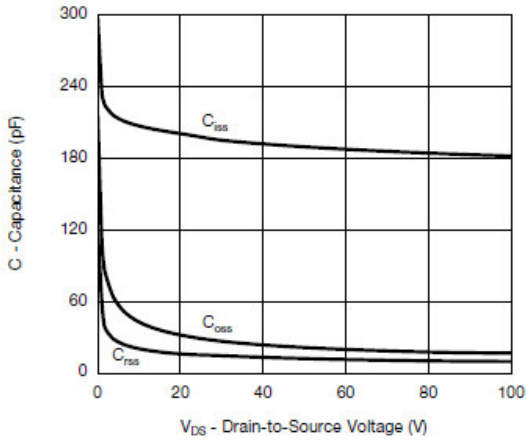
Output Characteristics



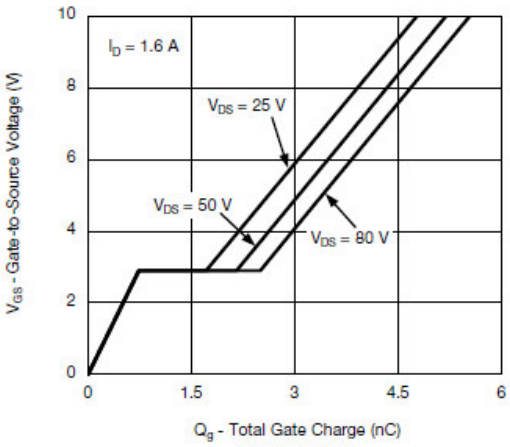
Transfer Characteristics



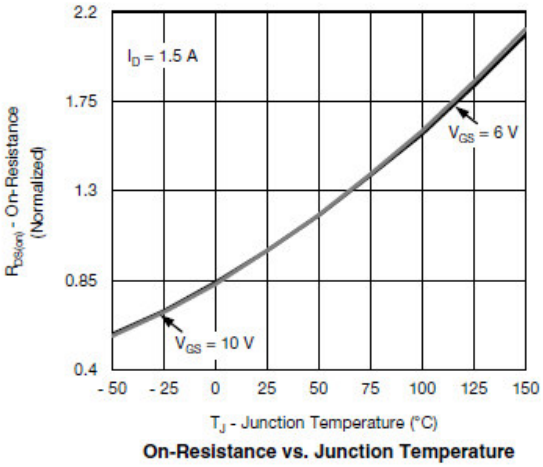
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

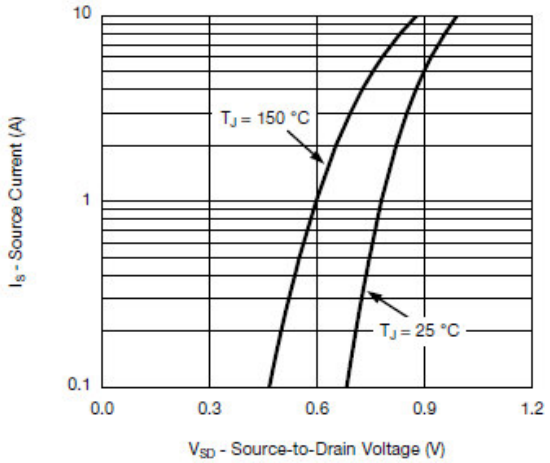


Gate Charge

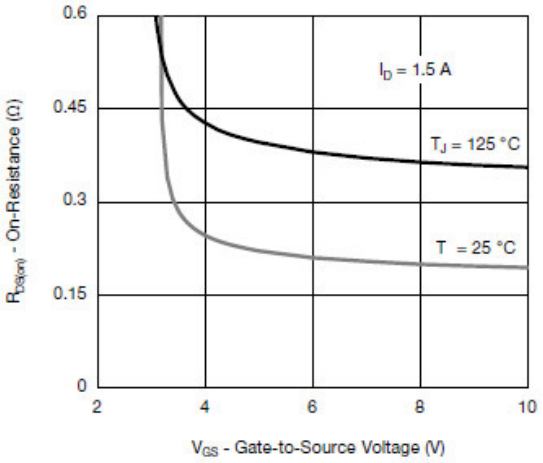


On-Resistance vs. Junction Temperature

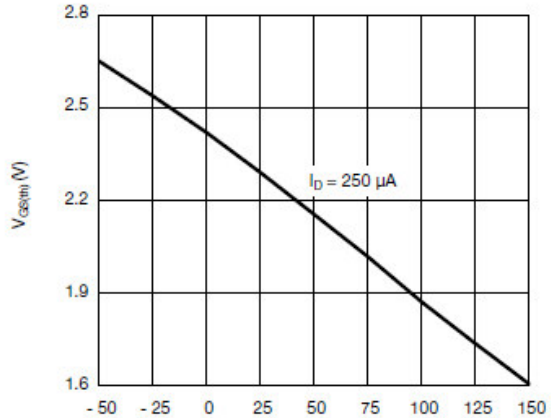
Typical Performance Characteristics (continue)



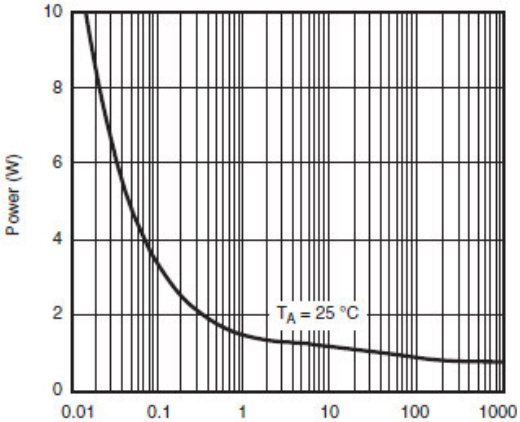
Source-Drain Diode Forward Voltage



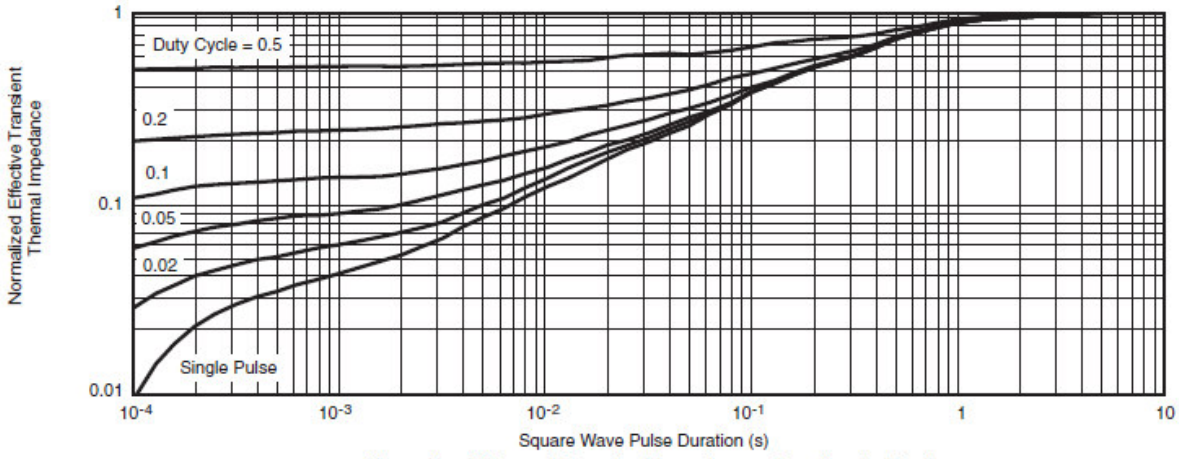
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



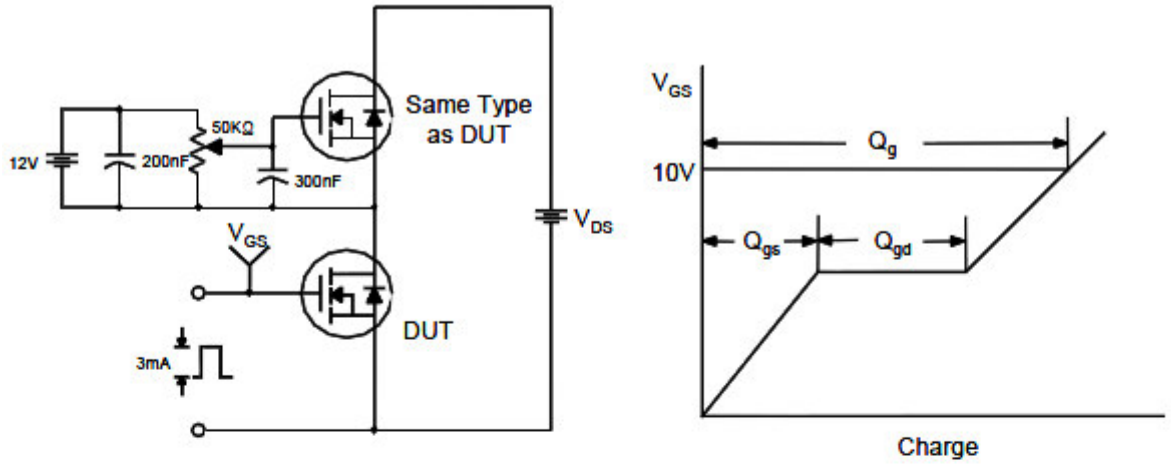
Single Pulse Power



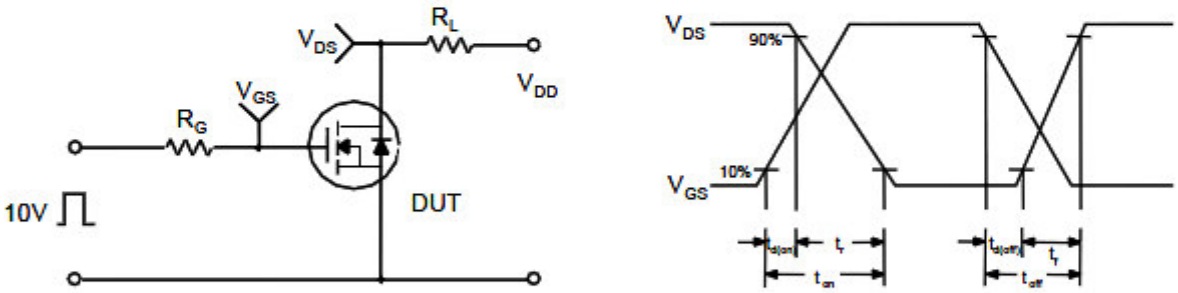
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Performance Characteristics (continue)

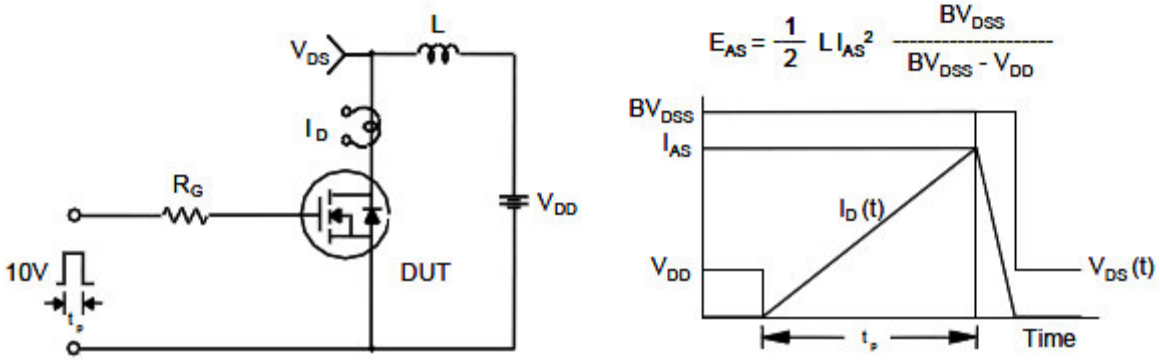
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

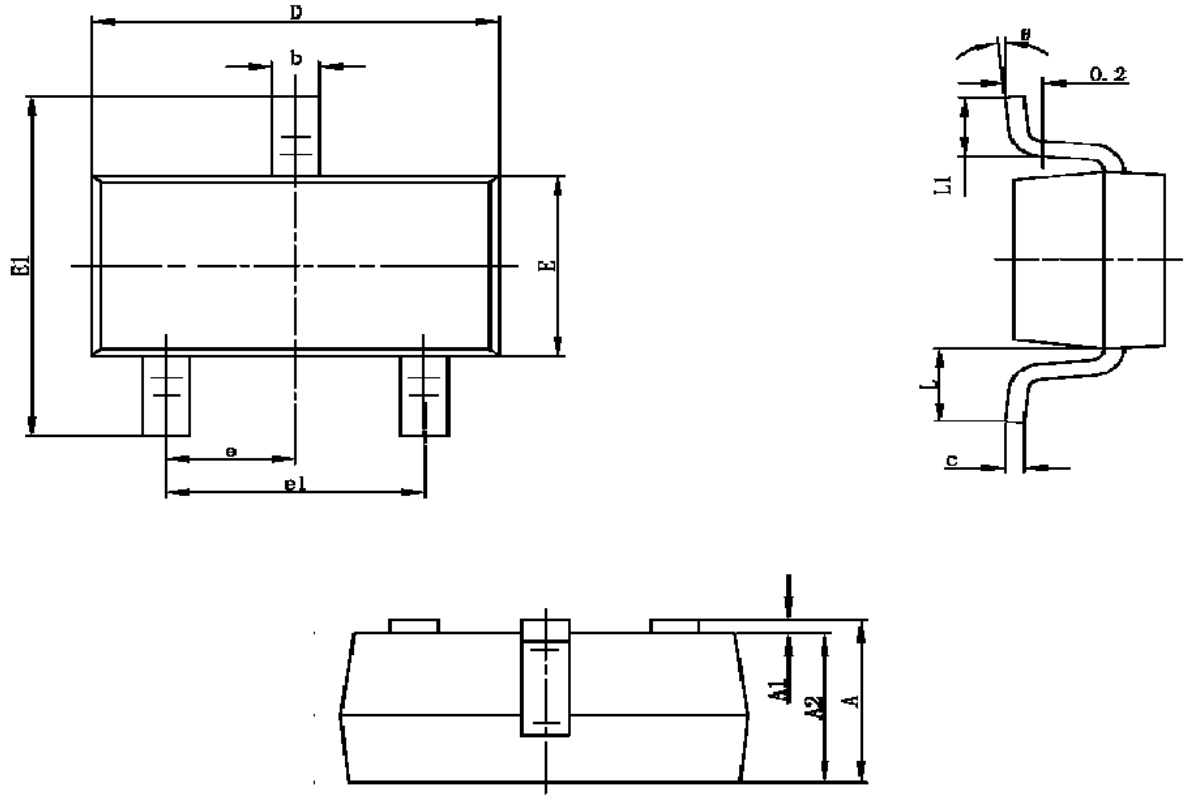


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOT-23-3L PLASTIC PACKAGE



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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