

# GSM1443

## 30V N-Channel Enhancement Mode MOSFET

### Product Description

GSM1443, 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.

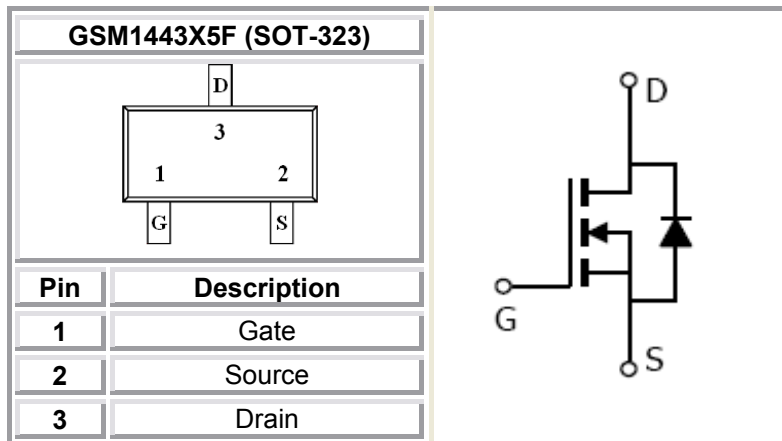
### Features

- 30V/3.6A ,  $R_{DS(ON)} = 78m\Omega @ V_{GS} = 10V$
- 30V/2.8A ,  $R_{DS(ON)} = 105m\Omega @ V_{GS} = 4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-323(SC-70) package design

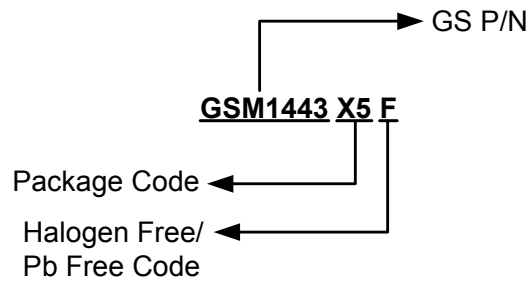
### Applications

- Portable Equipment
- Battery Powered System
- Net Working System

### Packages & Pin Assignments

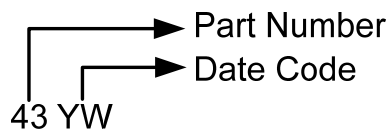


## Ordering Information



Part Number	Package	Quantity
GSM1443X5F	SOT-323	3000 PCS

## Marking Information



## Absolute Maximum Ratings

T<sub>A</sub>=25°C Unless otherwise noted

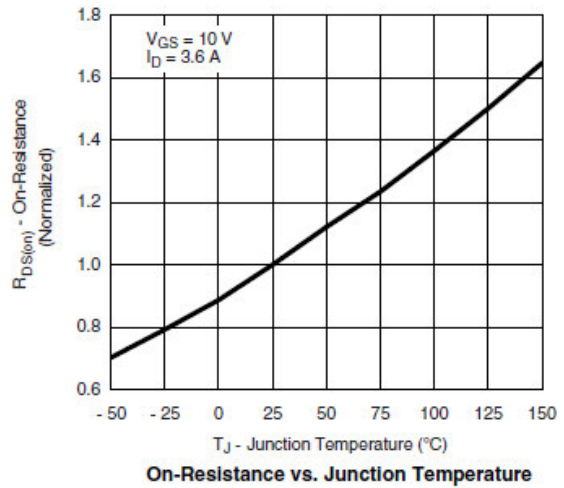
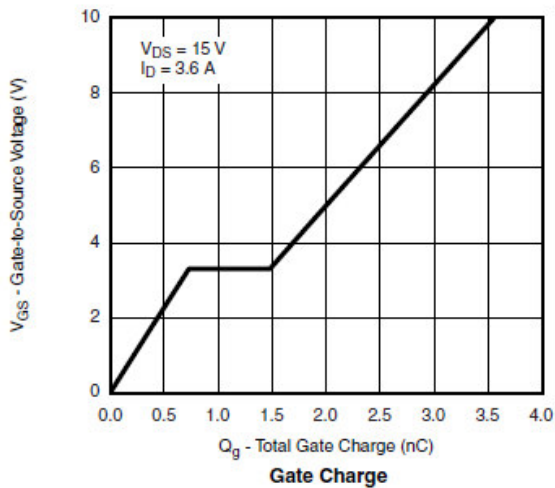
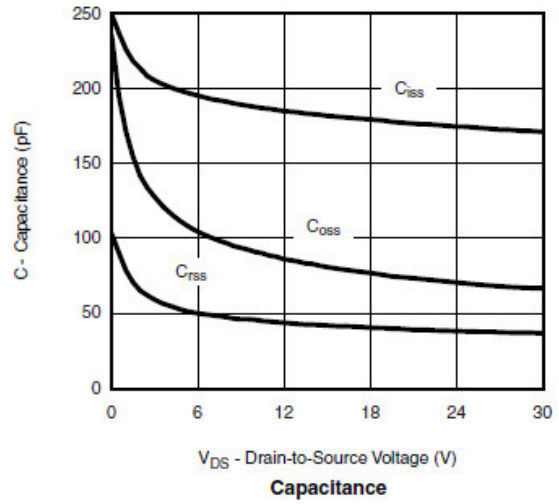
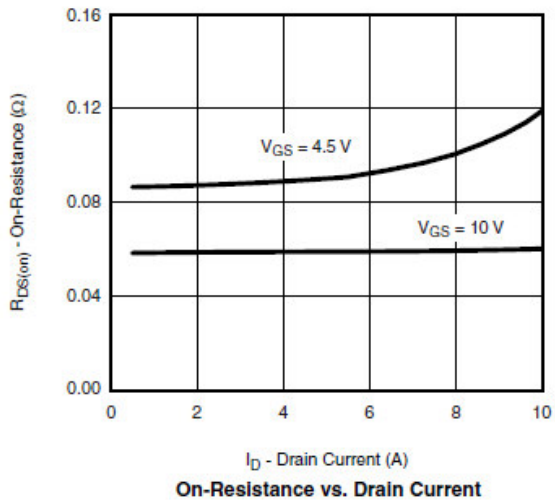
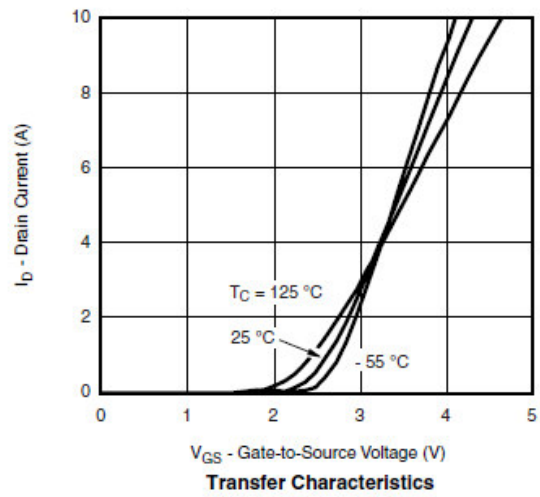
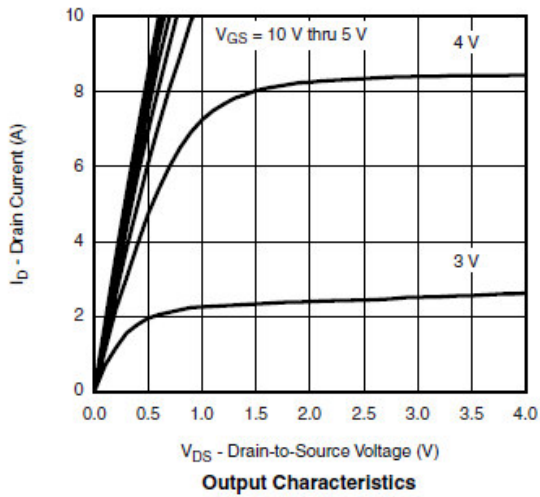
Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	30	V
V <sub>GSS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	3.6
		T <sub>A</sub> =70°C	2.6
I <sub>DM</sub>	Pulsed Drain Current	10	A
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	1.6	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	0.35
		T <sub>A</sub> =70°C	0.22
T <sub>J</sub>	Operating Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C
R <sub>θJA</sub>	Thermal Resistance-Junction to Ambient	120	°C/ W

## Electrical Characteristics

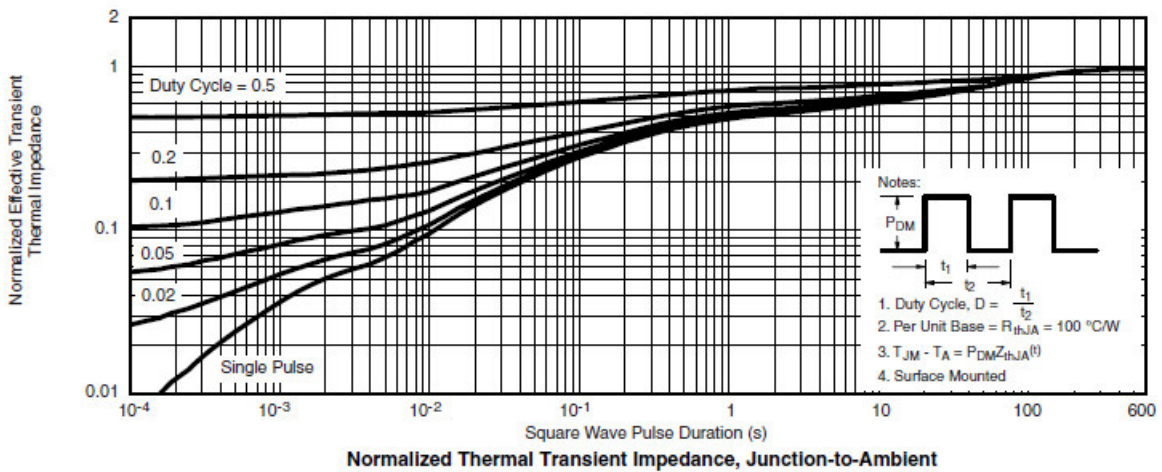
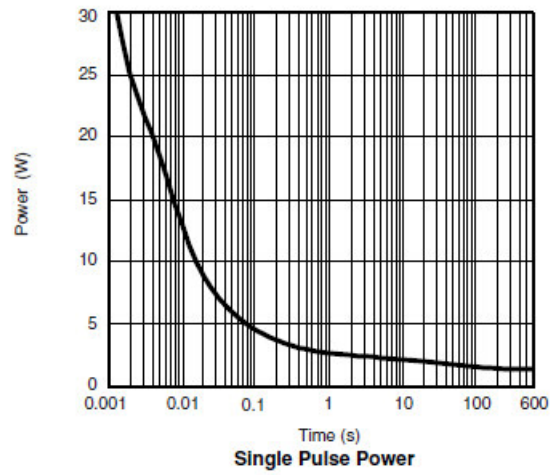
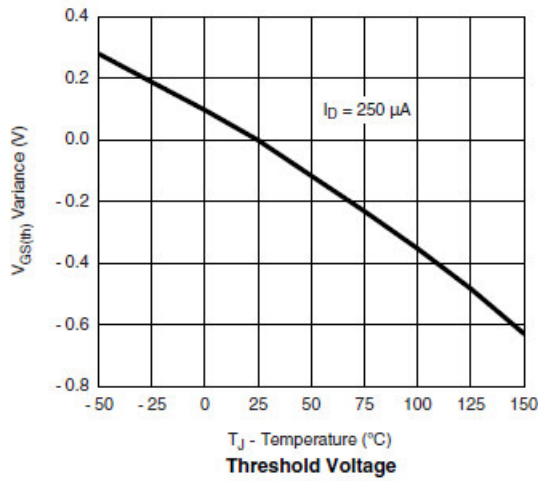
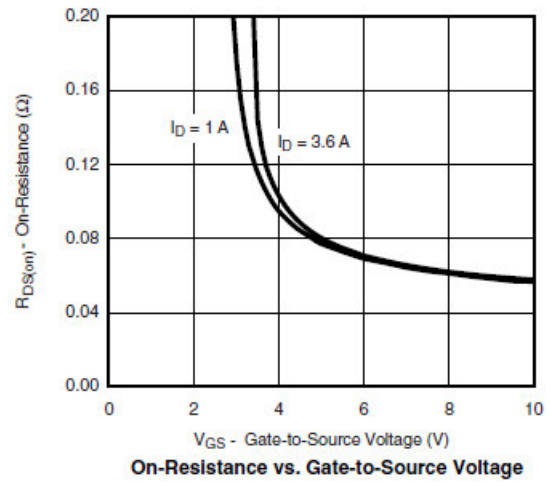
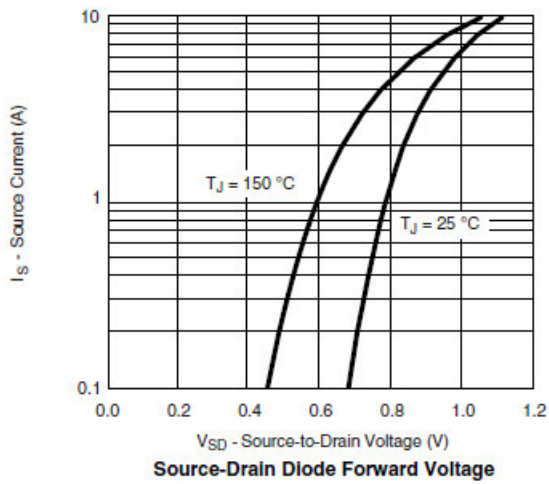
T<sub>A</sub>=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0		2.5	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 30V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> = 30V, V <sub>GS</sub> =0V, T <sub>J</sub> =85°C			30	
I <sub>D(on)</sub>	On-State Drain Current	V <sub>DS</sub> ≥ 4.5V, V <sub>GS</sub> =10V	6			A
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =3.6A		68	78	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =2.6A		90	105	
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =15V, I <sub>D</sub> =4.8A		11		S
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =2.7A, V <sub>GS</sub> =0V		0.8	1.2	V
<b>Dynamic</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		230		pF
C <sub>oss</sub>	Output Capacitance			50		
C <sub>rss</sub>	Reverse Transfer Capacitance			20		
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.4A		2.0	3.6	nC
Q <sub>gs</sub>	Gate-Source Charge			0.8		
Q <sub>gd</sub>	Gate-Drain Charge			0.65		
t <sub>d(on)</sub>	Turn-On Time	V <sub>DD</sub> =15V, R <sub>L</sub> =5.6Ω, I <sub>D</sub> =2.7A, V <sub>GEN</sub> =4.5V, R <sub>G</sub> =1Ω		10	12	ns
t <sub>r</sub>				45	60	
t <sub>d(off)</sub>	Turn-Off Time			12	18	
t <sub>f</sub>				20	30	

## Typical Performance Characteristics

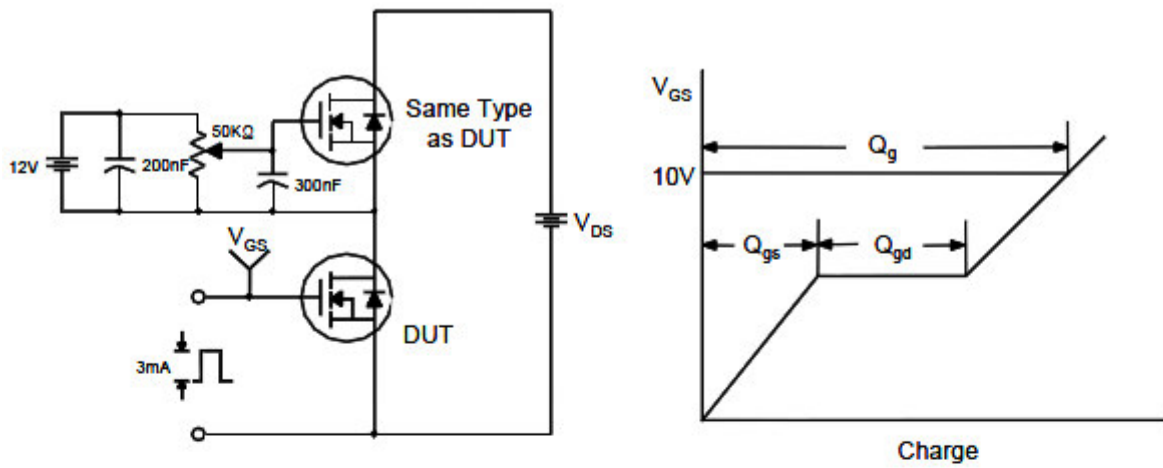


## Typical Characteristics

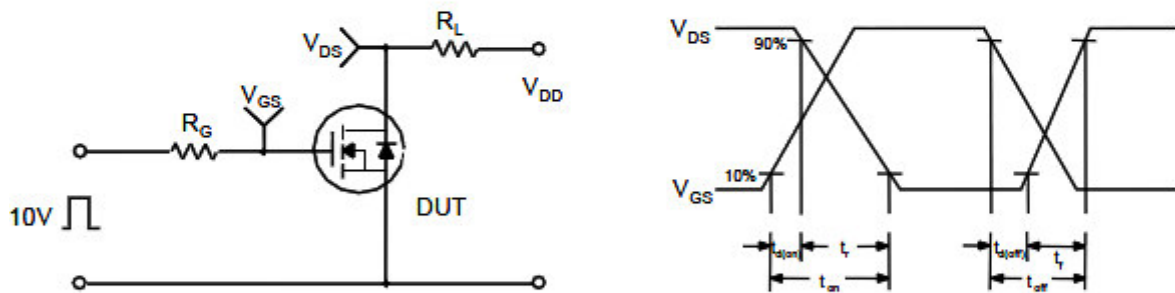


## Typical Characteristics

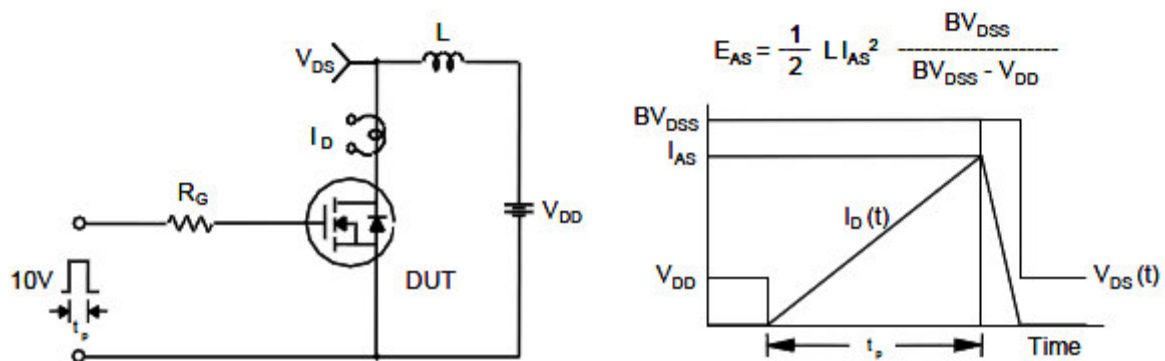
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

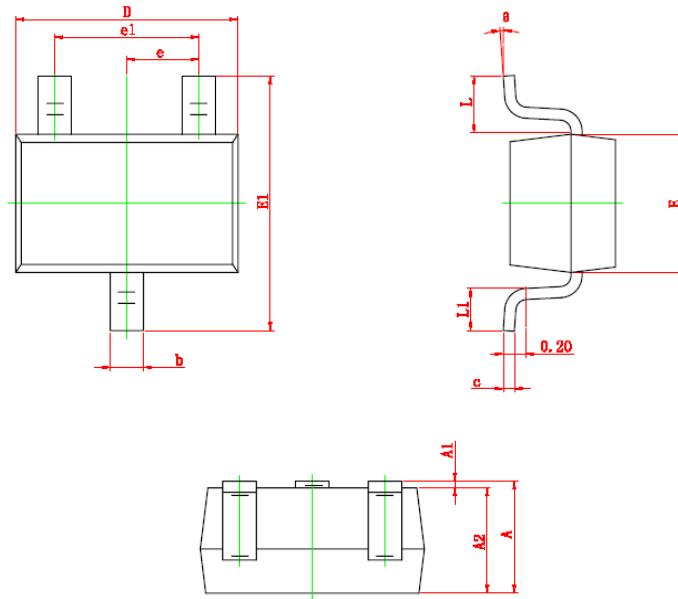


Unclamped Inductive Switching Test Circuit & Waveforms



## Package Dimension

### SOT-323 PLASTIC PACKAGE







Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
<b>A</b>	0.900	1.100	0.035	0.043
<b>A1</b>	0.000	0.100	0.000	0.004
<b>A2</b>	0.900	1.000	0.035	0.039
<b>b</b>	0.200	0.400	0.008	0.016
<b>c</b>	0.080	0.150	0.003	0.006
<b>D</b>	2.000	2.200	0.079	0.087
<b>E</b>	1.150	1.350	0.045	0.053
<b>E1</b>	2.150	2.450	0.085	0.096
<b>e</b>	0.650 TYP		0.026 TYP	
<b>e1</b>	1.200	1.400	0.047	0.055
<b>L</b>	0.525 REF		0.021 REF	
<b>L1</b>	0.260	0.460	0.010	0.018
<b>θ</b>	0°	8°	0°	8°



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