

GSM8931

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM8931, 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, and low in-line power loss are needed in commercial industrial surface mount applications.

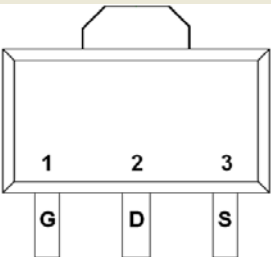
Features

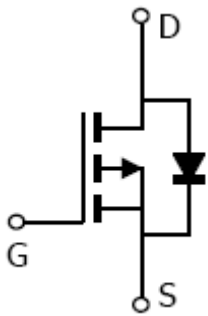
- -30V/-4.6A, $R_{DS(ON)}=36m\Omega@V_{GS}=-10V$
- -30V/-3.6A, $R_{DS(ON)}=46m\Omega@V_{GS}=-4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-89-3L package design

Applications

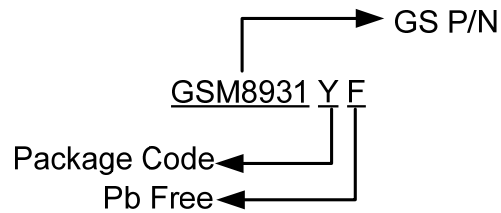
- Motor and Load Control
- LCD TV Inverter & AD/DC Inverter Systems.
- Backlight Inverter for LCD Display
- Load Switch
- CCFL Inverter

Packages & Pin Assignments

GSM8931YF(SOT-89-3L)	
	
Pin	Description
1	Gate
2	Drain
3	Source

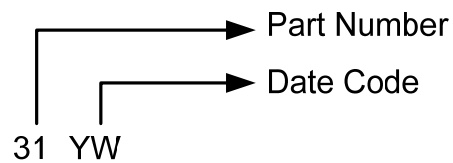


Ordering Information



Part Number	Package	Quantity Reel
GSM8931YF	SOT-89-3L	1000 PCS

Marking Information



Absolute Maximum Ratings

$T_A=25^{\circ}\text{C}$ Unless otherwise noted

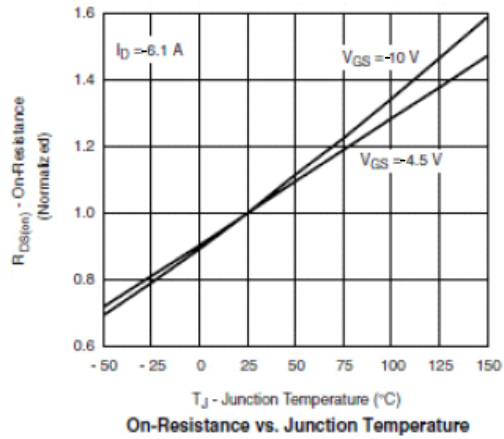
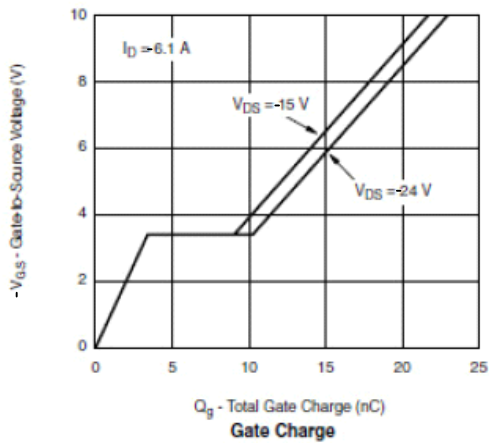
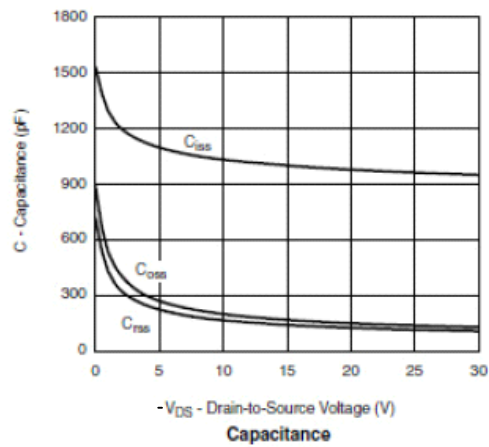
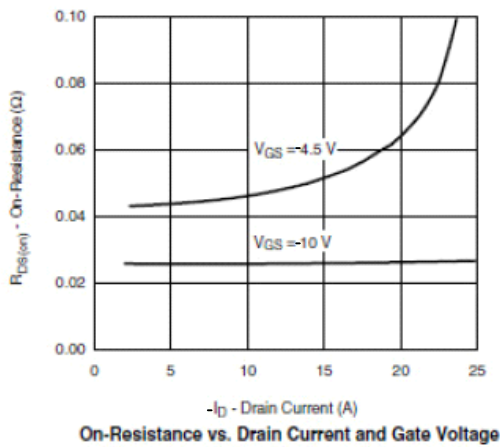
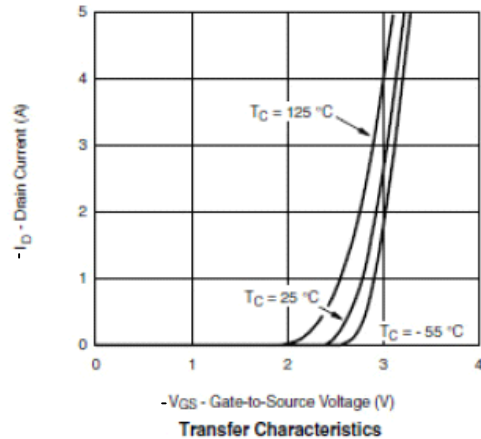
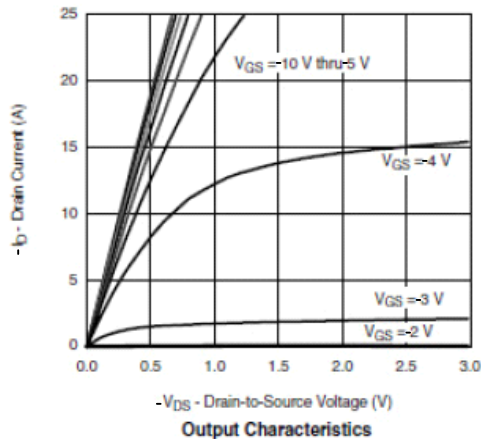
Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	-30	V	
V_{GSS}	Gate -Source Voltage	± 20	V	
I_D	Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_A = 25^{\circ}\text{C}$	-4.6	A
		$T_A = 70^{\circ}\text{C}$	-3.6	
I_{DM}	Pulsed Drain Current	-10	A	
I_S	Continuous Source Current(Diode Conduction)	-1.6	A	
P_D	Power Dissipation	$T_A = 25^{\circ}\text{C}$	1.45	W
		$T_A = 70^{\circ}\text{C}$	0.6	
T_J	Operating Junction Temperature	150	$^{\circ}\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}\text{C}$	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	120	$^{\circ}\text{C}/\text{W}$	

Electrical Characteristics

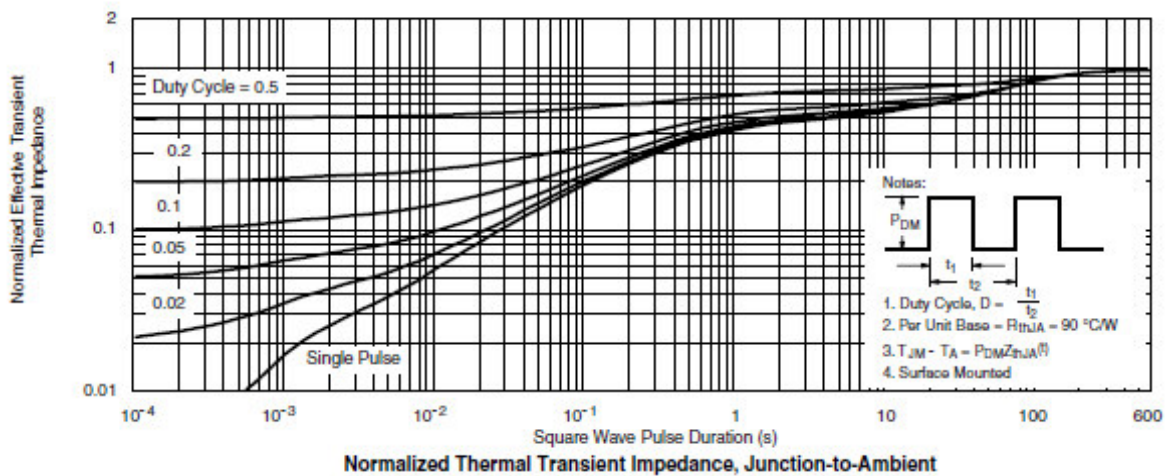
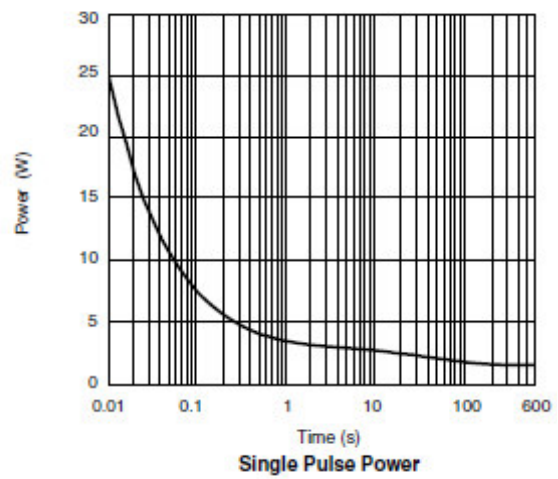
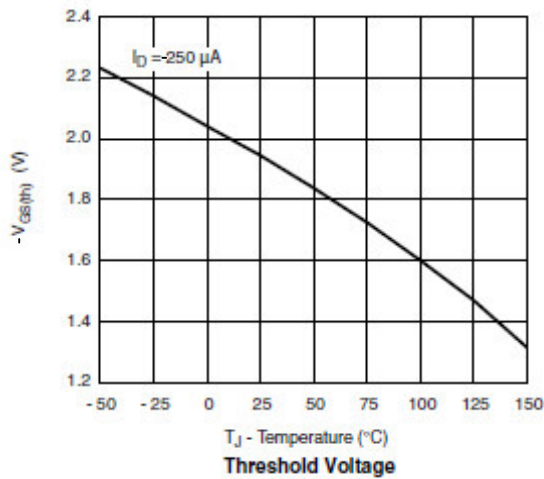
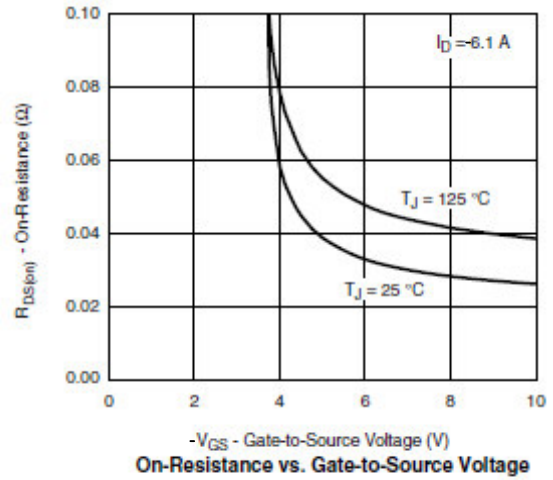
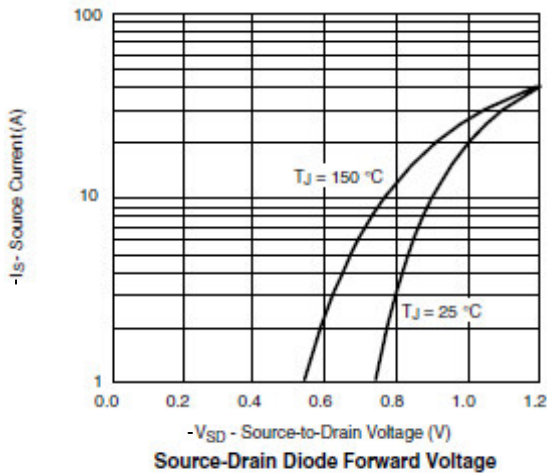
T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	-30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	-0.5		-1.8	
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	μA
		V _{DS} =-24V, V _{GS} =0V, T _J =85°C			-30	
I _{D(on)}	On-State Drain Current	V _{DS} ≤ -5V, V _{GS} = -10V	-10			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = -10V, I _D = -4.6A		32	36	mΩ
		V _{GS} = -4.5V, I _D = -3.6A		38	46	
g _{FS}	Forward Transconductance	V _{DS} = -5V, I _D = -4.0A		10		S
V _{SD}	Diode Forward Voltage	I _S = -1.7A, V _{GS} =0V		-0.7	-1.3	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-3.6A		10	18	nC
Q _{gs}	Gate-Source Charge			1.6		
Q _{gd}	Gate-Drain Charge			3.0		
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz		900		pF
C _{oss}	Output Capacitance			150		
C _{rss}	Reverse Transfer Capacitance			120		
t _{d(on)}	Turn-On Time	V _{DD} =-15V, R _L =15Ω, I _D =-3.6A, V _{GEN} =-10V, R _G =6Ω		8	18	ns
t _r				8	18	
t _{d(off)}	Turn-Off Time			25	50	
t _f				25	35	

Typical Performance Characteristics

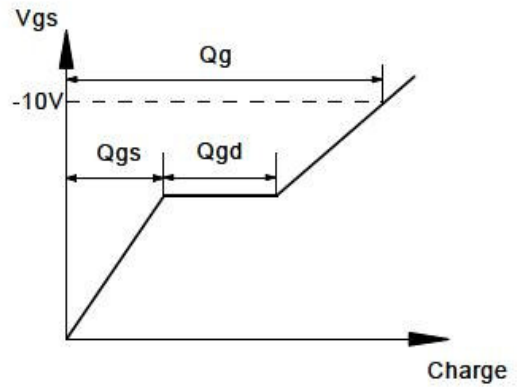
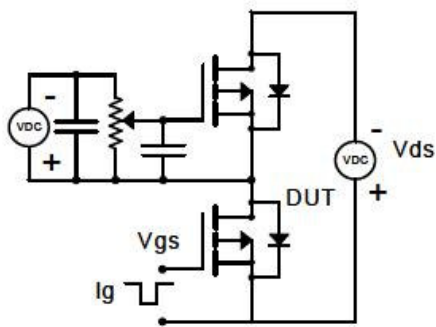


Typical Performance Characteristics (continue)

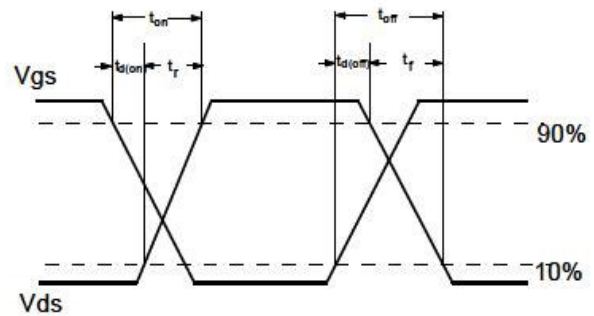
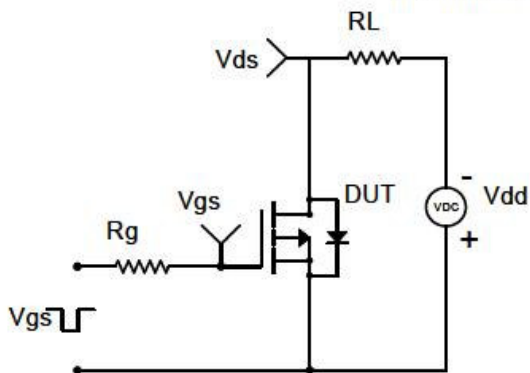


Typical Performance Characteristics (continue)

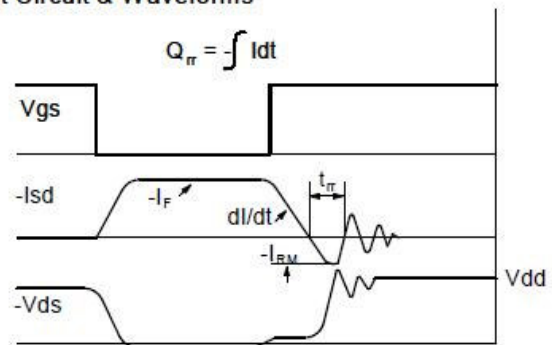
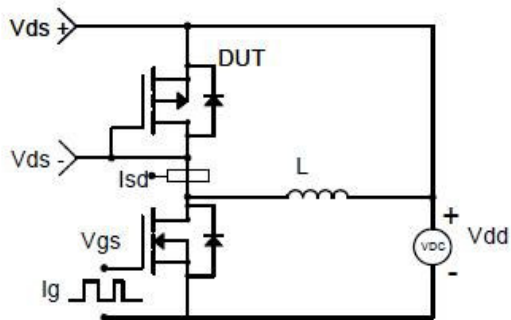
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

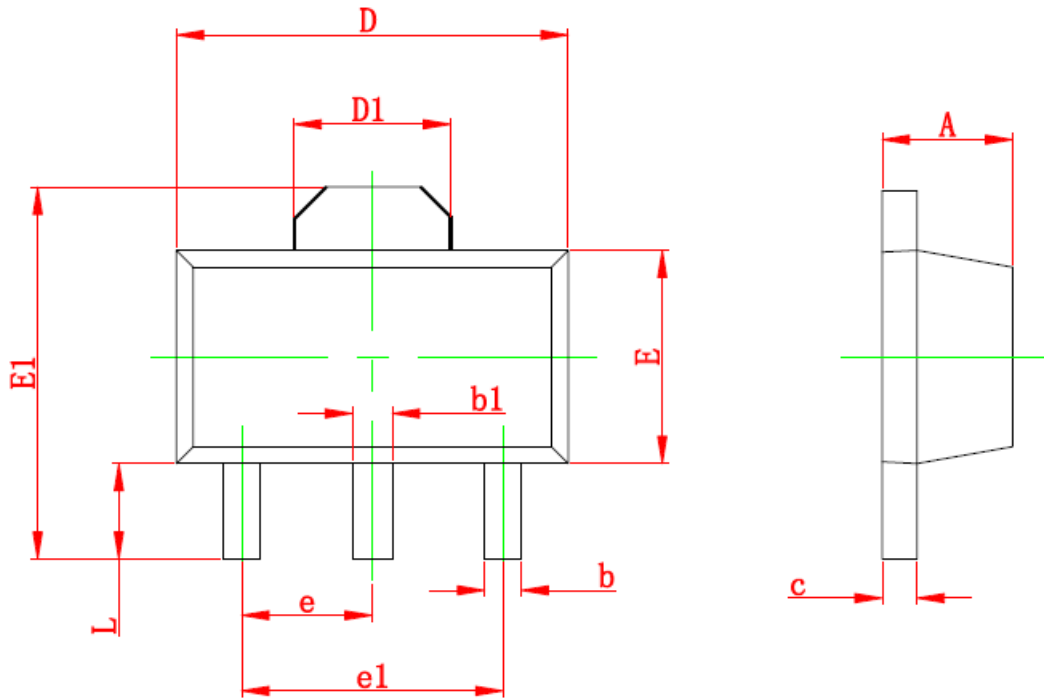


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOT-89-3L




Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 (REF)		0.061 (REF)	
E	2.30	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.50 (TYP)		0.060 (TYP)	
e1	3.00 (TYP)		0.118 (TYP)	
L	0.900 (TYP)	1.200	0.035	0.047

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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Shenzhen Branch(China)	
	1113 B Building, Happiness Washington, Baoan Nan Road, Luohu District, Shenzhen City, China
	0755-22208941
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587