

# GSM3153SF

## 30V P-Channel Enhancement Mode MOSFET

### Product Description

GSM3153SF, 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.

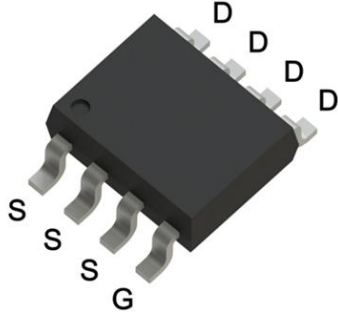
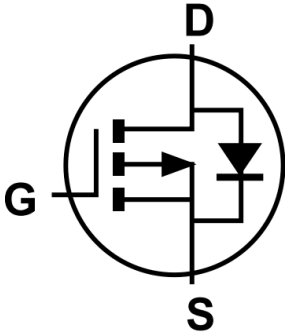
### Features

- $R_{DS(ON)}=54m\Omega @ V_{GS}=-10V$
- $R_{DS(ON)}=72m\Omega @ V_{GS}=-4.5V$
- $R_{DS(ON)}=120m\Omega @ V_{GS}=-2.5V$
- Suit for -2.5V Gate Drive Applications

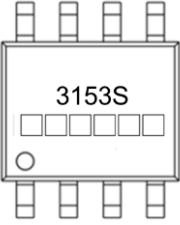
### Applications

- Notebook
- LED Display
- DC-DC System
- LCD Panel

### Packages & Pin Assignments

GSM3153SF (SOP-8)		Equivalent Circuit
		
Pin	Description	
1	Source	
2	Source	
3	Source	
4	Gate	
5	Drain	
6	Drain	
7	Drain	
8	Drain	

## Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM3153SF	SOP-8	3153S □□□□□□	4,000 PCS
<b>GSM3153</b> ① ② - <b>Product Code:</b> GSM3153 - <b>Package Code:</b> ① is <b>S</b> for SOP-8 - <b>Green Level:</b> ② is <b>F</b> for RoHS Compliant and Halogen Free			
Marking Information			
 <div style="margin-left: 20px;">             - <b>Product Code:</b> 3153S               - <b>GS Code:</b> □□□□□□           </div>			

## Absolute Maximum Ratings

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

Symbol	Parameter		Value	Unit
V <sub>DSS</sub>	Drain-Source Voltage		-30	V
V <sub>GSS</sub>	Gate-Source Voltage		±12	V
I <sub>D</sub>	Continuous Drain Current	T <sub>A</sub> =25°C	-4.4	A
		T <sub>A</sub> =70°C	-3.5	
I <sub>DM</sub>	Pulsed Drain Current		-18	A
I <sub>S</sub>	Continuous Source Current (Diode Conduction)		-1	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	1.5	W
		T <sub>A</sub> =70°C	1	
T <sub>J</sub>	Operating Junction Temperature Range		-55 to +150	°C
T <sub>STG</sub>	Storage Temperature Range		-55 to +150	°C
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient		80	°C/W

## Electrical Characteristics

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static characteristics</b>						
BV <sub>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	-0.4	-	-1.3	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V	-	-	±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V	-	-	-1	μA
		V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V, T <sub>J</sub> =85°C	-	-	-30	μA
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.8A	-	44	54	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3.8A	-	62	72	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-3.0A	-	98	120	mΩ
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =-1.0A, V <sub>GS</sub> =0V	-	-0.7	-1.0	V
<b>Dynamic characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, f=1MHz	-	573	-	pF
C <sub>oss</sub>	Output Capacitance		-	74	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	53	-	
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.8A	-	13.6	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	1.2	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	2.0	-	
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-15V, R <sub>L</sub> =10Ω, I <sub>D</sub> =-1.0A, V <sub>GEN</sub> =-10V, R <sub>G</sub> =6.0Ω	-	6.9	-	ns
t <sub>r</sub>	Turn-On Rise Time		-	12.3	-	
t <sub>d(off)</sub>	Turn-Off Delay Time		-	25	-	
t <sub>f</sub>	Turn-Off Fall Time		-	13	-	

## Typical Performance Characteristics

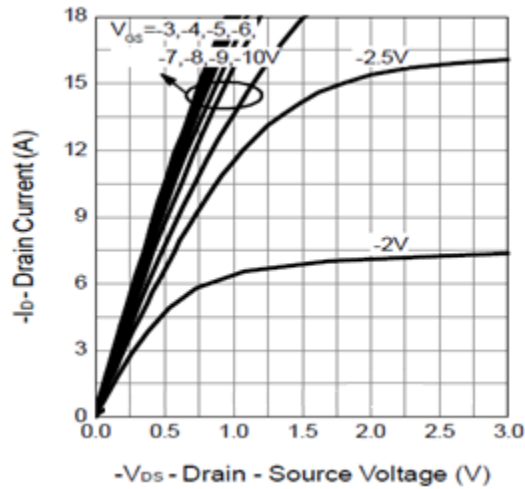


Figure 1. Output Characteristics

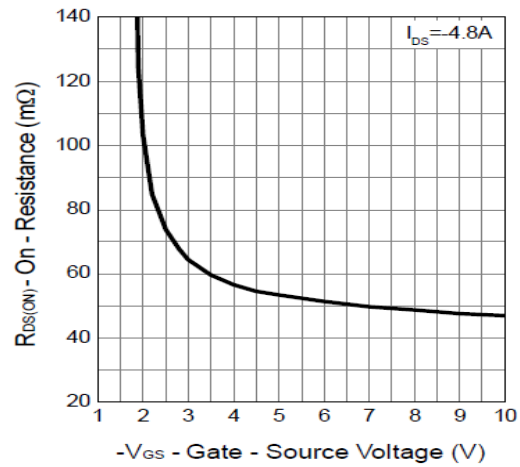


Figure 2. On-Resistance vs. Gate-Source Voltage

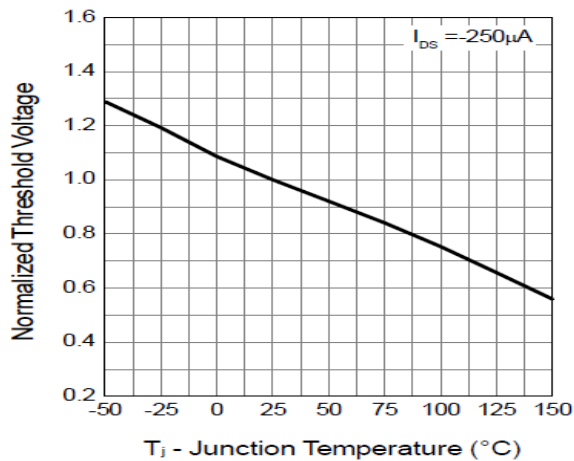


Figure 3. Threshold Voltage

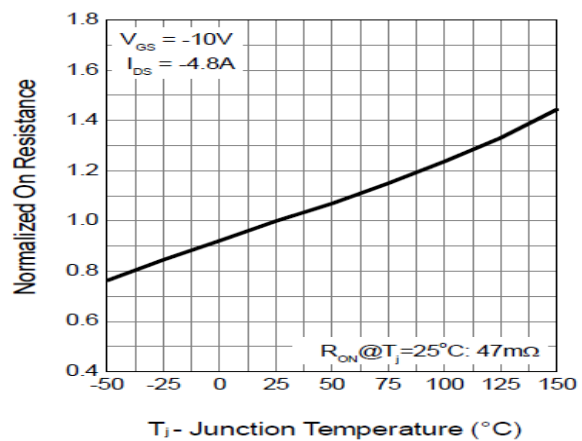


Figure 4. Drain-Source On-State Resistance vs T<sub>J</sub>

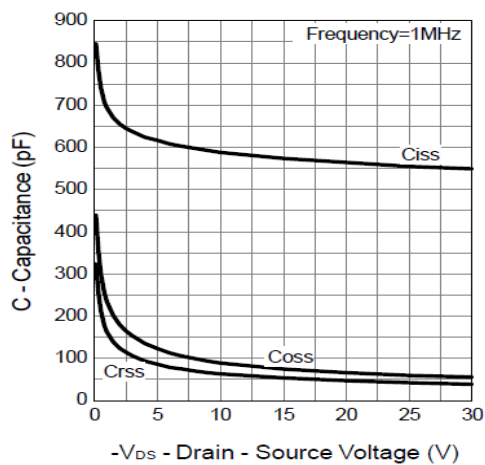


Figure 5. Capacitance

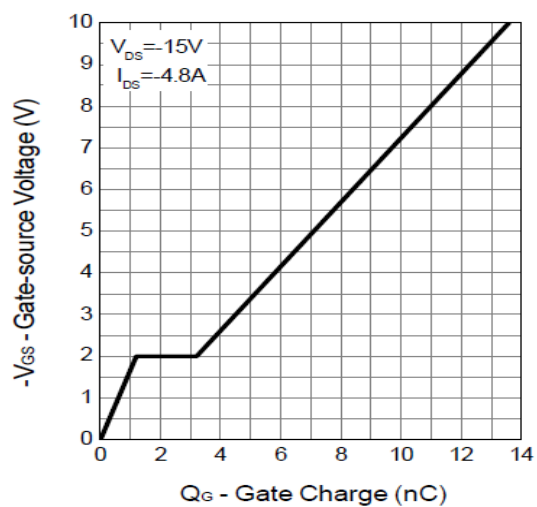


Figure 6. Gate Charge

## Typical Performance Characteristics

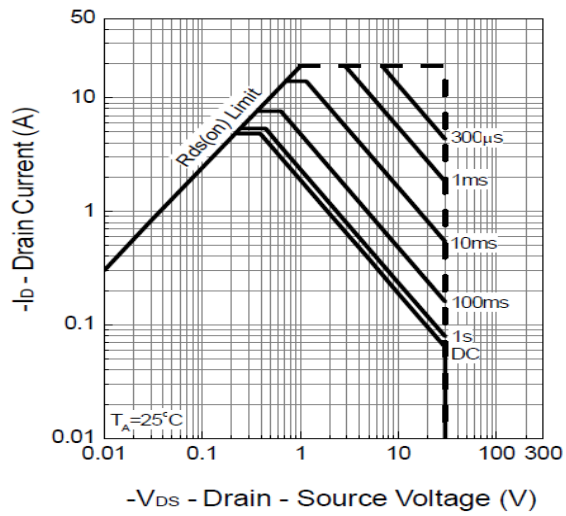


Figure 7. Safe Operation Area

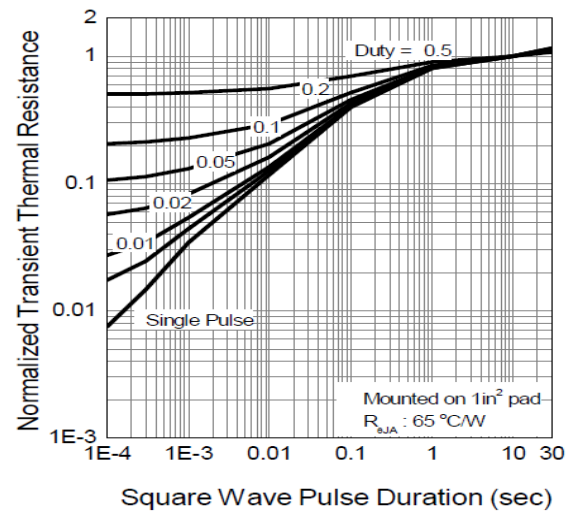
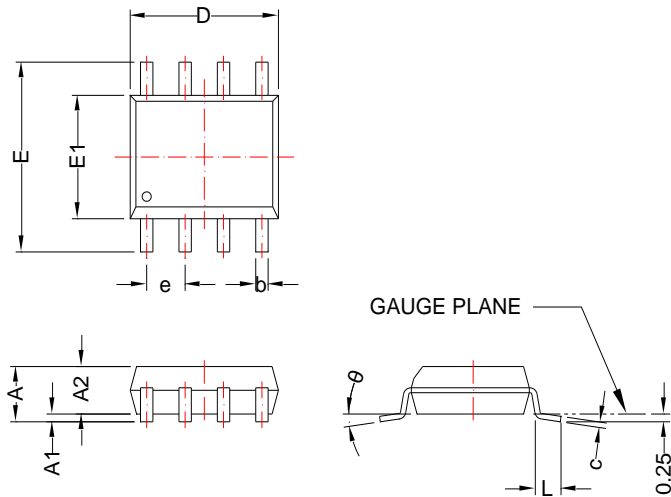


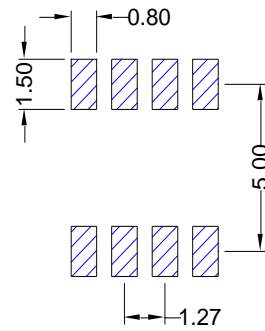
Figure 8. Normalized Thermal Transient Impedance

# SOP-8

## Package Dimension



## Recommended Land Pattern







Dimensions				
Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.10	0.25	0.004	0.010
D	4.70	5.10	0.185	0.201
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
L	0.4	1.27	0.016	0.050
$\theta$	0°	8°	0°	8°



NOTE:  
Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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