GSM3050S

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM3050S, 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

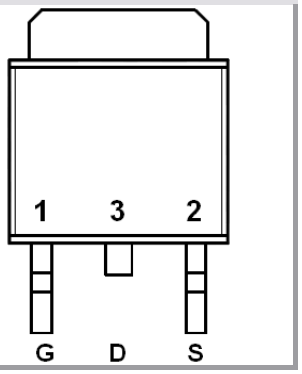
- -30V/-9A,$R_{DS(ON)}$=60mΩ@V_{GS}=-10V
- -30V/-7A,$R_{DS(ON)}$=72mΩ@V_{GS}=-4.5V
- -30V/-5A,$R_{DS(ON)}$=108mΩ@V_{GS}=-2.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- TO-252-2L package design

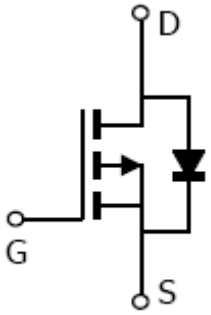
Applications

- LED Display
- Load Switch
- CCFL Inverter
  Power Management in Notebook Computer

Packages & Pin Assignments

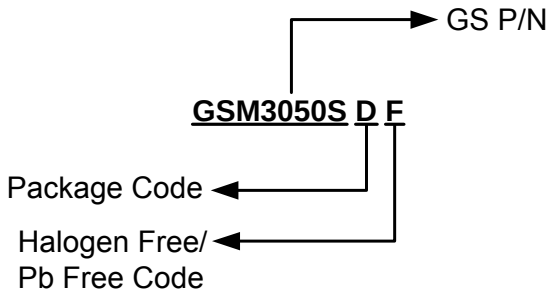
GSM3050SDF(TO-252-2L)





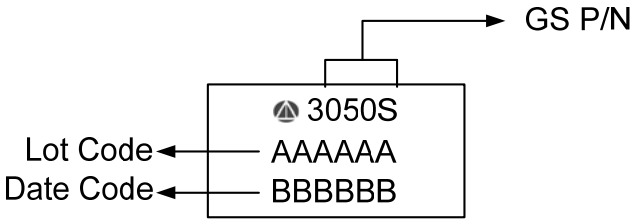
1	Gate
2	Source
3	Drain

Ordering Information



Part Number	Package	Quantity Reel
GSM3050SDF	TO-252-2L	2500 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25ºC 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℃)	T_A=25ºC	-15.0	A
		T_A=70ºC	-9.0	
I_{DM}	Pulsed Drain Current		-45	A
I_S	Continuous Source Current(Diode Conduction)		-9.0	A
P_D	Power Dissipation	T_A=25ºC	40	W
		T_A=70ºC	15	
T_J	Operating Junction Temperature		150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	ºC/ W

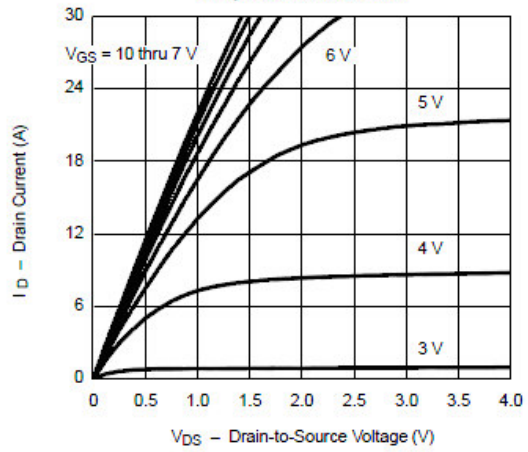
Electrical Characteristics

(T_A=25ºC unless otherwise noted)

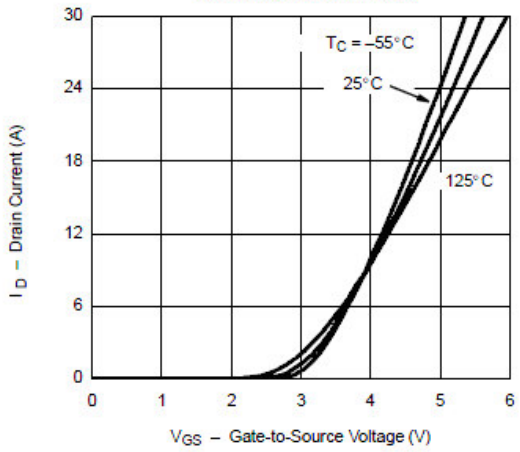
Symbol	Parameter	Conditions	Min.	Typ	Max.	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-0.6		-1.1	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}= -24V,V_{GS}=0V			-1	uA
		V_{DS}= -24V, V_{GS}=0V,T_J=85ºC			-30	
$I_{D(on)}$	On-State Drain Current	V_{DS}≤-5V,V_{GS}=-4.5V	-9			A
		V_{DS}≤-5V,V_{GS}=-2.5V	-5			
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10.0V,I_D=-9.0A		50	60	mΩ
		V_{GS}=-4.5V,I_D=-7.0A		57	72	
		V_{GS}=-2.5V,I_D=-5.0A		70	108	
g_{fs}	Forward Transconductance	V_{DS}=-5V,I_D=-2.8A		6.5		S
V_{SD}	Diode Forward Voltage	I_S=-1.0A,V_{GS}=0V		-0.7	-1.3	V
Dynamic						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V,f=1MHz		450		pF
C_{oss}	Output Capacitance			95		
C_{rss}	Reverse Transfer Capacitance			55		
Q_g	Total Gate Charge	V_{DS}=-15V, V_{GS}=-10V, I_D≡-4.0A		10	18	nC
Q_{gs}	Gate-Source Charge			1.6		
Q_{gd}	Gate-Drain Charge			3.0		
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, R_L=15Ω ,I_D≡-1.0A 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

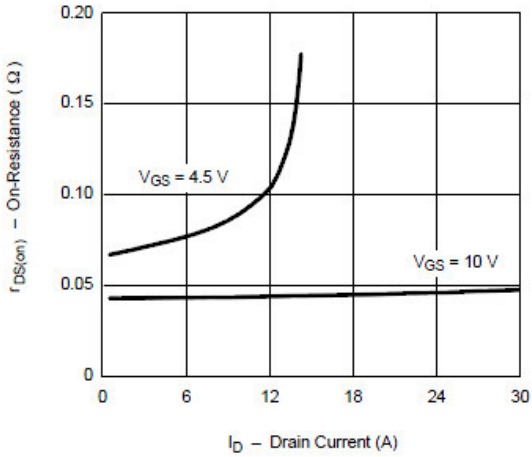
Output Characteristics



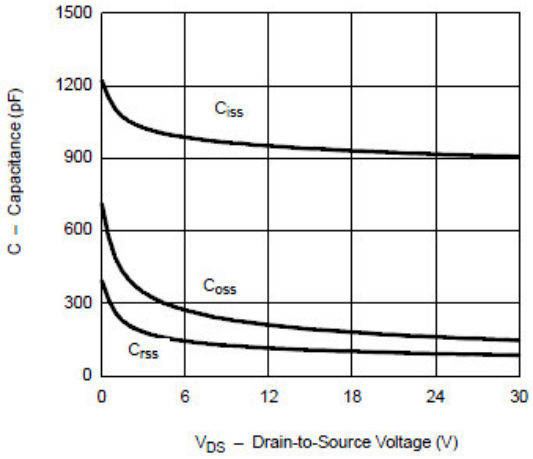
Transfer Characteristics



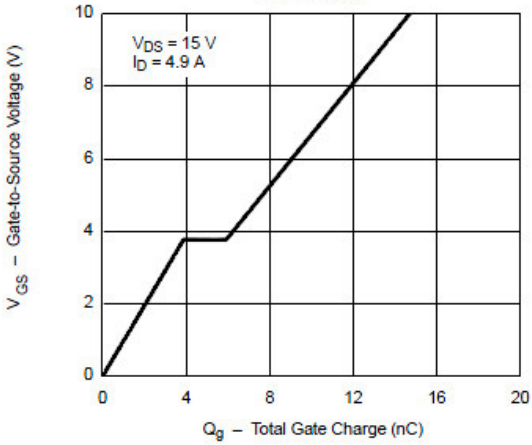
On-Resistance vs. Drain Current



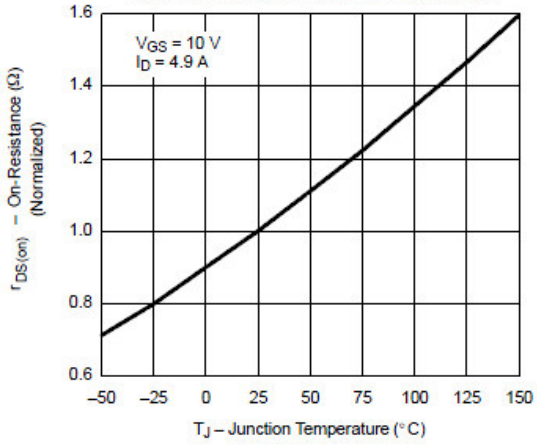
Capacitance



Gate Charge

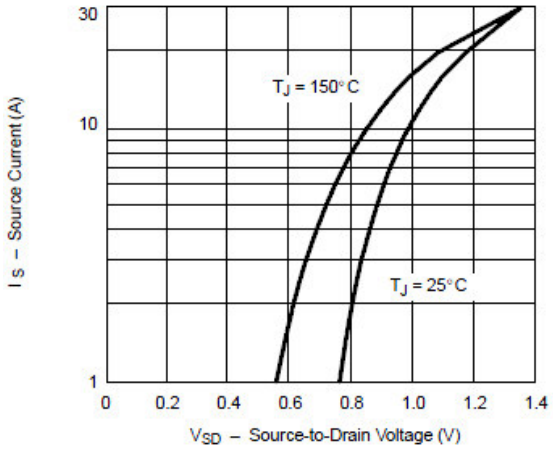


On-Resistance vs. Junction Temperature

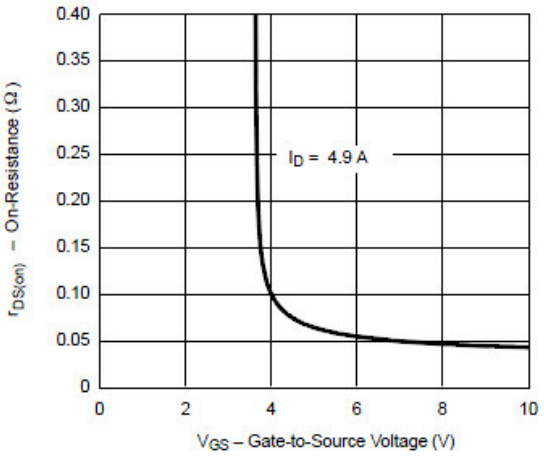


Typical Performance Characteristics (continue)

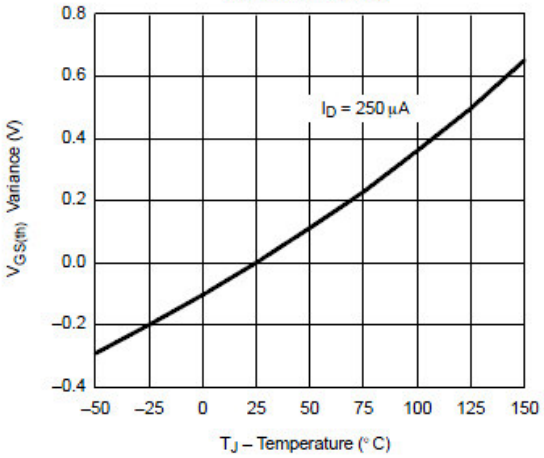
Source-Drain Diode Forward Voltage



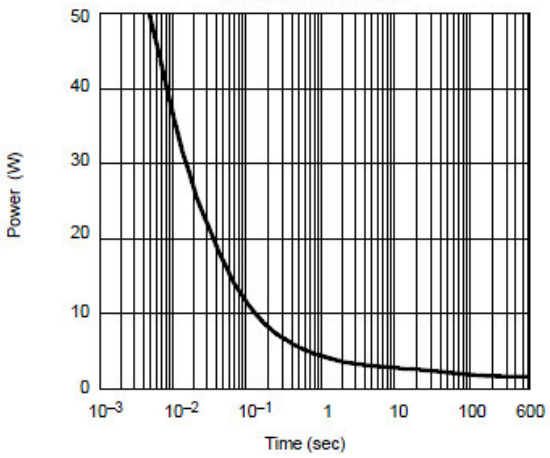
On-Resistance vs. Gate-to-Source Voltage



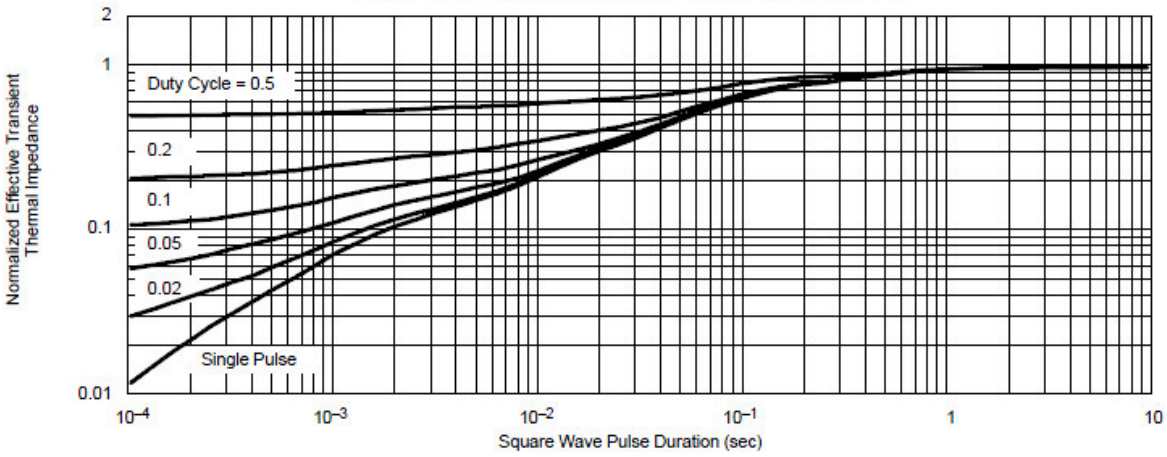
Threshold Voltage



Single Pulse Power

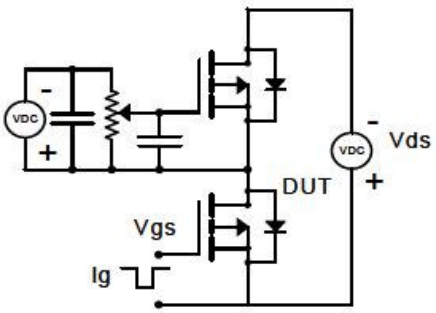


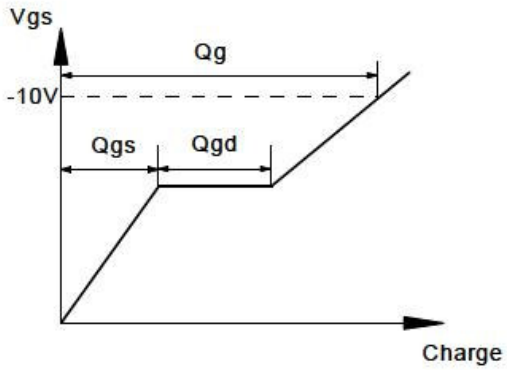
Normalized Thermal Transient Impedance, Junction-to-Foot



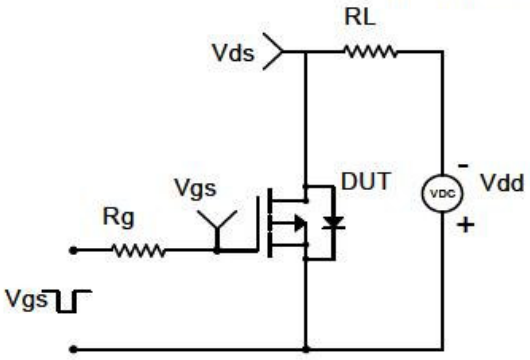
Typical Characteristics

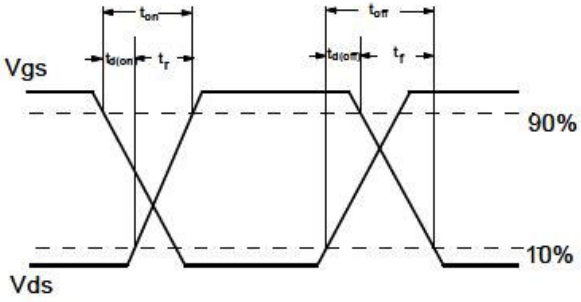
Gate Charge Test Circuit & Waveform



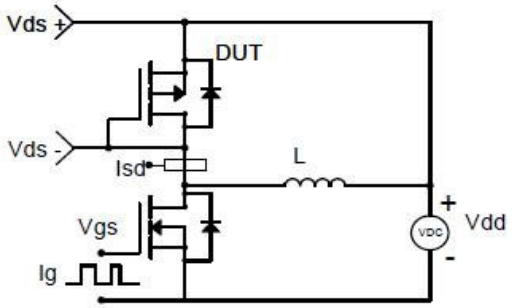


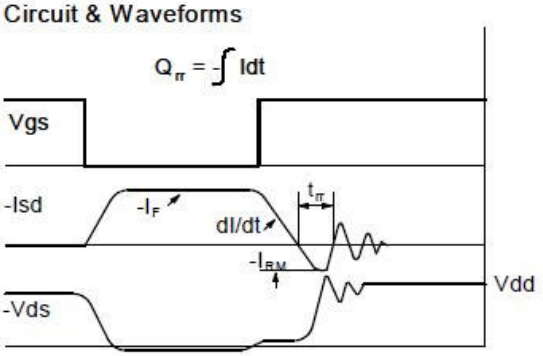
Resistive Switching Test Circuit & Waveforms





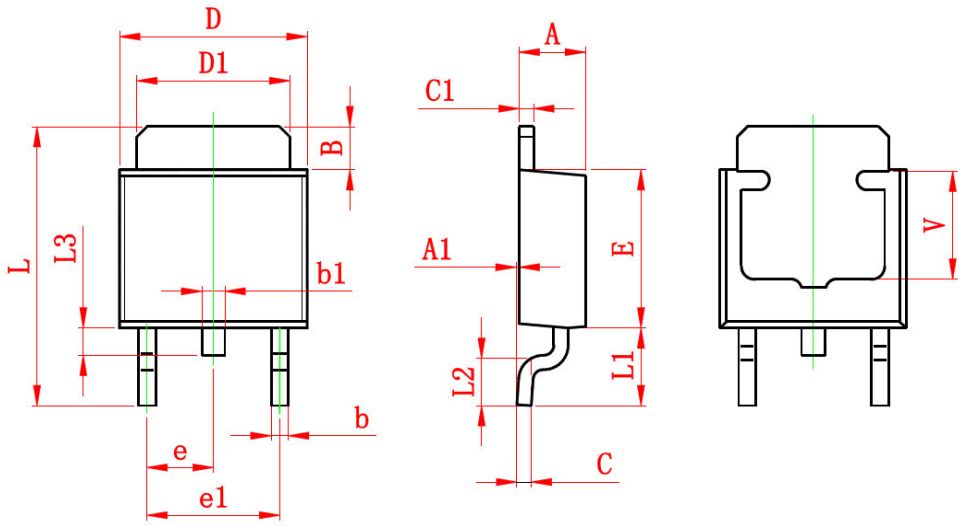
Diode Recovery Test Circuit & Waveforms





Package Dimension

TO-252-2L



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF		0.150 REF	

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