

# GSM3015S

## 30V N-Channel Enhancement Mode MOSFET

### Product Description

GSM3015S, 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, and low in-line power loss are needed in commercial industrial surface mount applications.

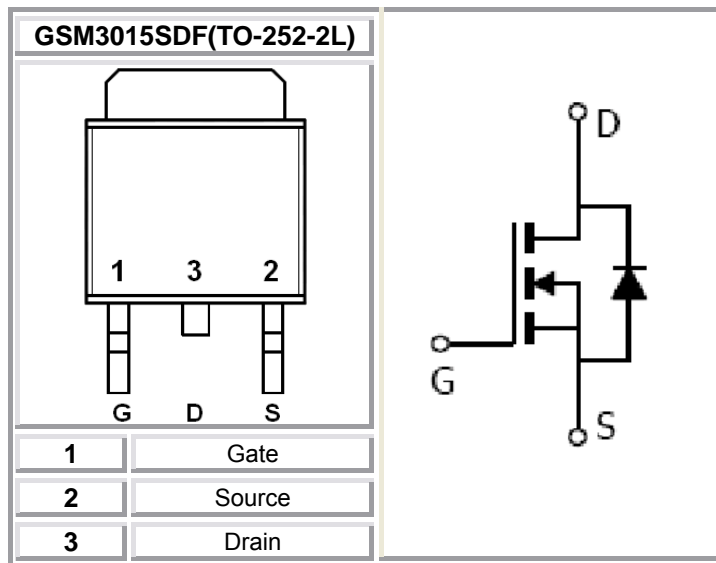
### Features

- 30V/45A,  $R_{DS(ON)}=5.1m\Omega@V_{GS}=10V$
- 30V/30A,  $R_{DS(ON)}=6.8m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- TO-252-2L package design

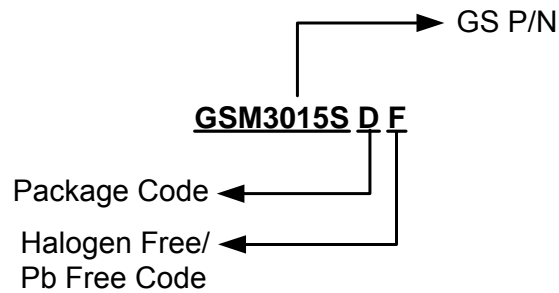
### Applications

- Buck Converter-High Side / Low Side
- Synchronous Rectifier-Secondary Rectifier

### Packages & Pin Assignments

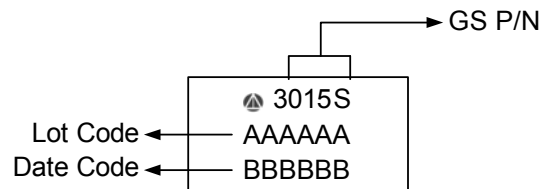


## Ordering Information



Part Number	Package	Quantity Reel
GSM3015SDF	TO-252-2L	2500 PCS

## Marking Information



## Absolute Maximum Ratings

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

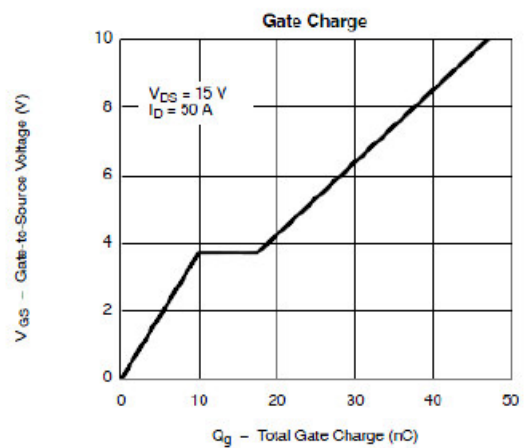
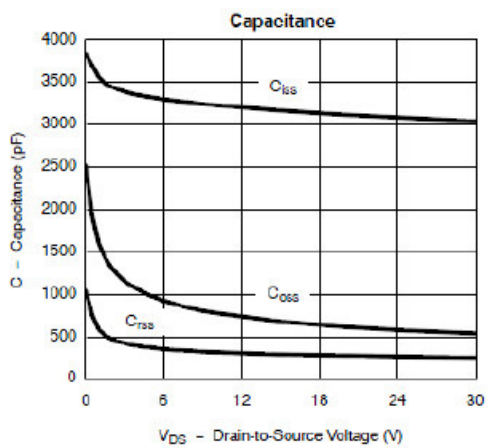
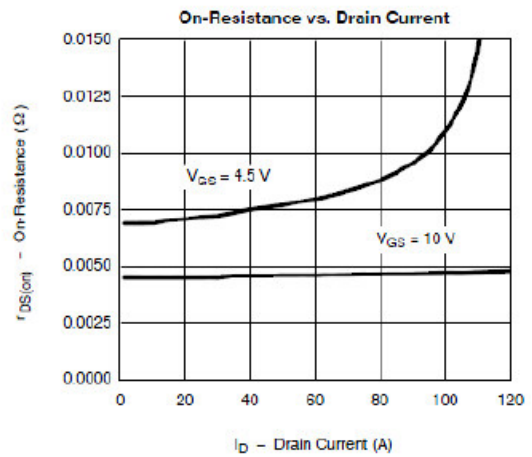
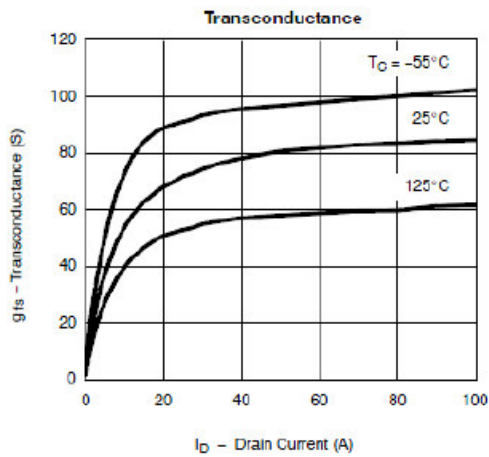
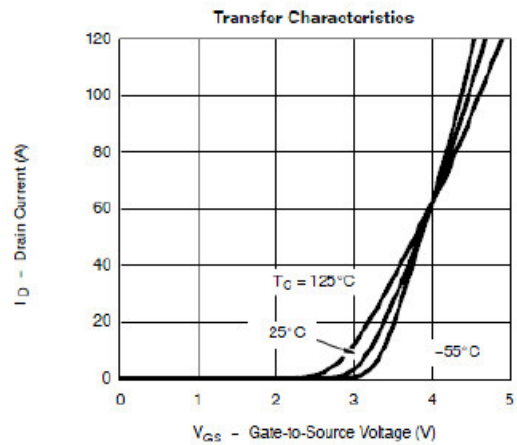
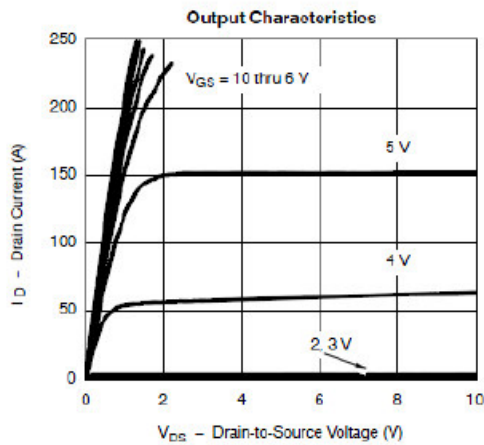
Symbol	Parameter	Typical	Unit
$V_{DSS}$	Drain-Source Voltage	30	V
$V_{GSS}$	Gate -Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current( $T_J=150^{\circ}\text{C}$ )	$T_A=25^{\circ}\text{C}$	75
		$T_A=70^{\circ}\text{C}$	55
$I_{DM}$	Pulsed Drain Current	200	A
$I_S$	Continuous Source Current(Diode Conduction)	9.0	A
$P_D$	Power Dissipation	$T_A=25^{\circ}\text{C}$	40
		$T_A=70^{\circ}\text{C}$	15
$T_J$	Operating Junction Temperature	150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range	-55/150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^{\circ}\text{C}/\text{W}$

## Electrical Characteristics

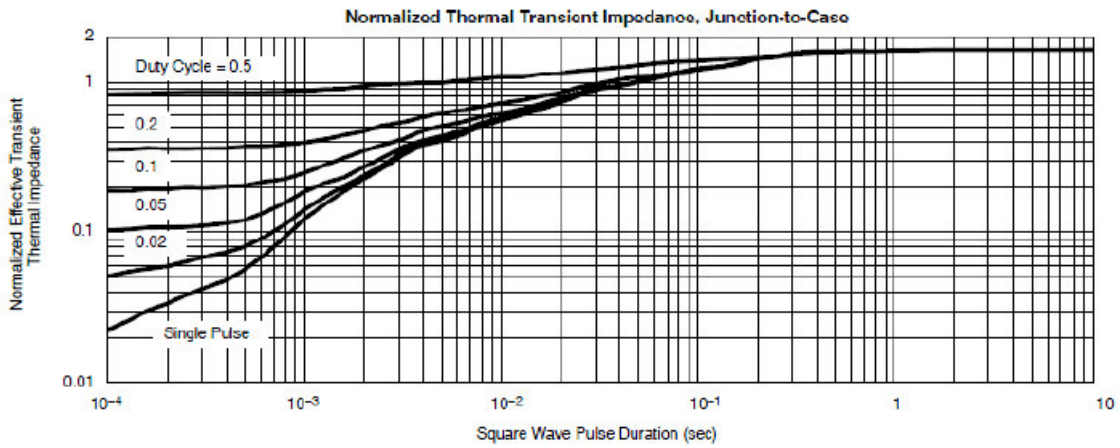
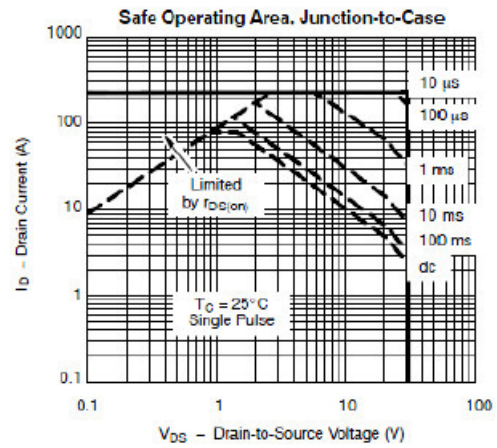
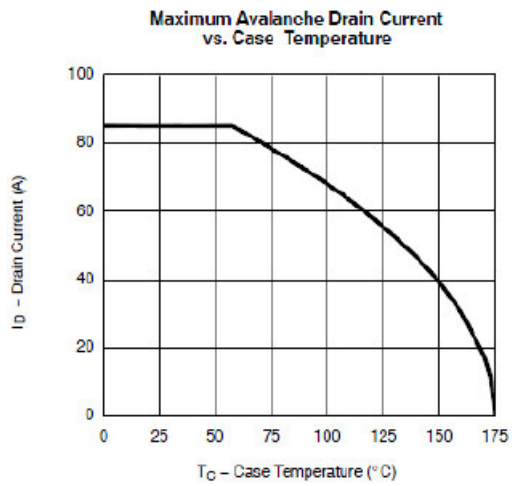
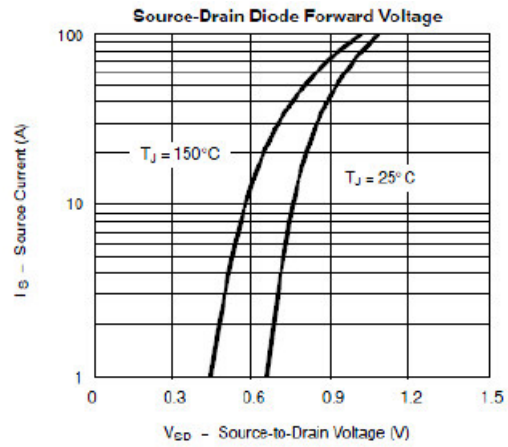
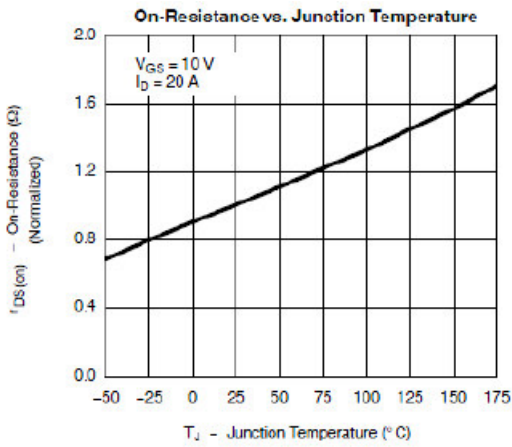
( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		2.0	
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V, T_J=85^\circ\text{C}$			10	
$I_{D(on)}$	On-State Drain Current	$V_{DS}\geq 5V, V_{GS}=10V$	15			A
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=45A$		3.6	5.1	m $\Omega$
		$V_{GS}=4.5V, I_D=30A$		5.1	6.8	
$g_{fs}$	Forward Transconductance	$V_{DS}=15V, I_D=20A$		24		S
$V_{SD}$	Diode Forward Voltage	$I_S=30A, V_{GS}=0V$		0.8	1.3	V
<b>Dynamic</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$		2800		pF
$C_{oss}$	Output Capacitance			550		
$C_{rss}$	Reverse Transfer Capacitance			300		
$Q_g$	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D=40A$		50	70	nC
$Q_{gs}$	Gate-Source Charge			10		
$Q_{gd}$	Gate-Drain Charge			8		
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, R_L=0.3\Omega, I_D=40A, V_{GEN}=10V, R_G=2.5\Omega$		12	20	ns
$t_r$				12	20	
$t_{d(off)}$	Turn-Off Time			30	45	
$t_f$				10	20	

## Typical Performance Characteristics

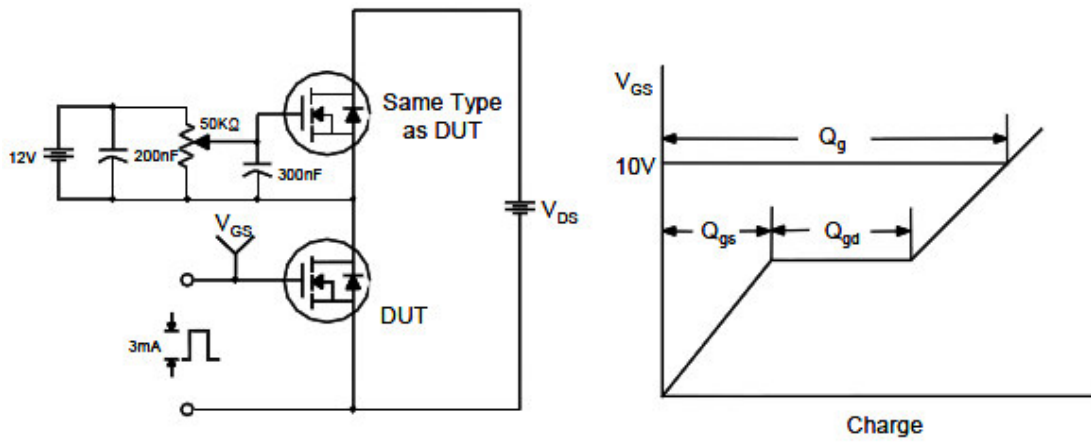


## Typical Performance Characteristics (continue)

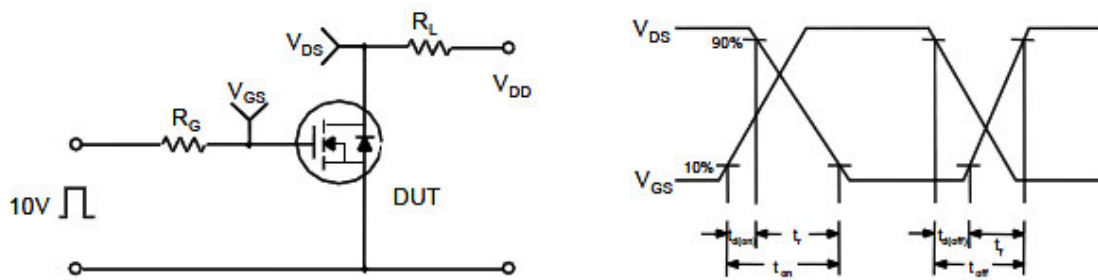


## Typical Characteristics

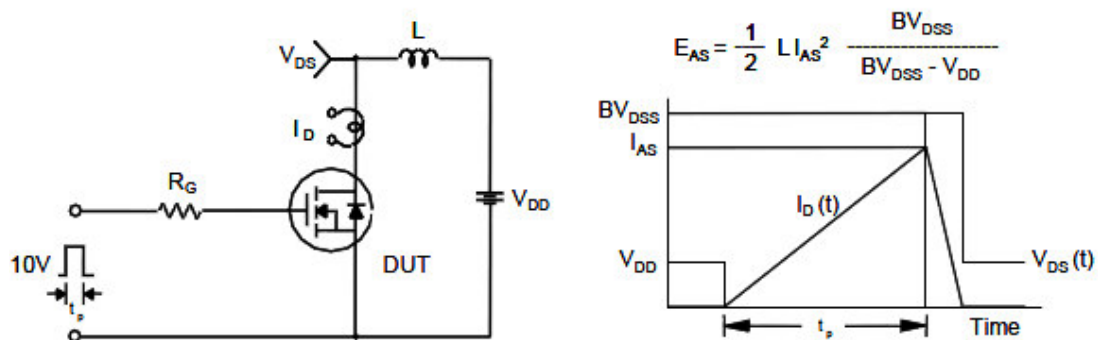
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

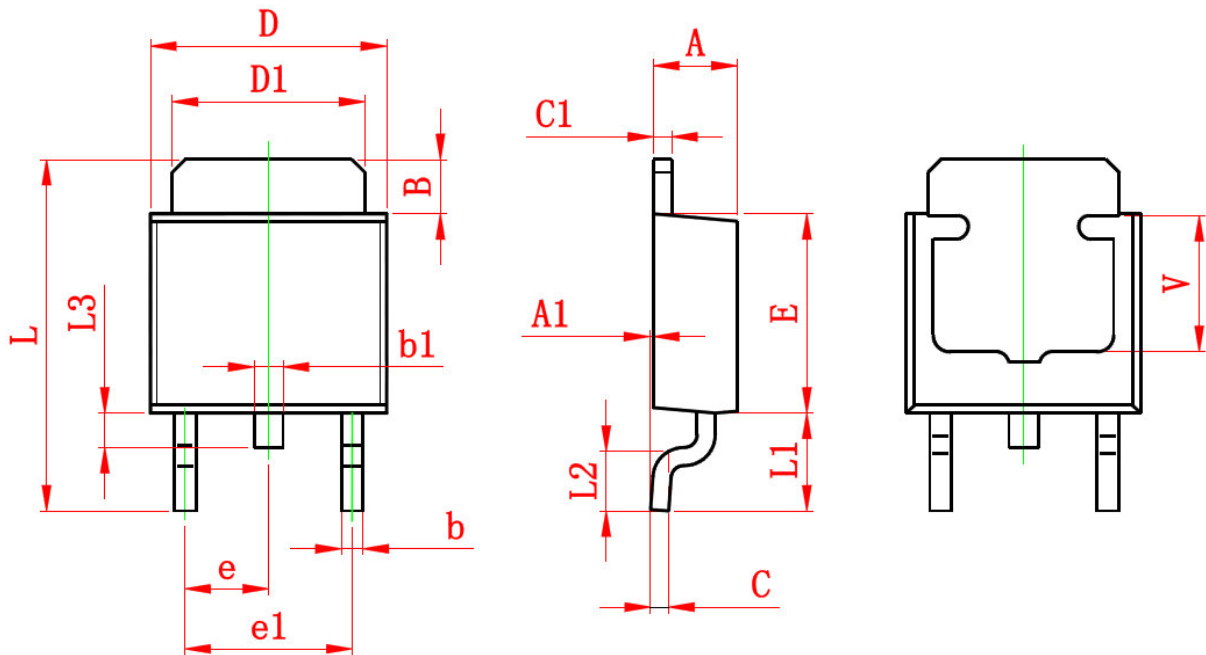


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

## TO-252-2L PLASTIC PACKAGE







### 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	0.500	0.700	0.020	0.028
b1	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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