

GSM3456

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM3456, 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.

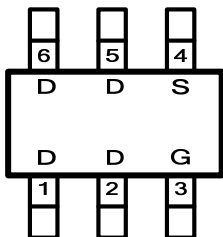
Features

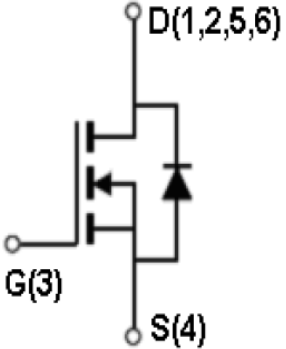
- 30V/5.6A, $R_{DS(ON)}=40m\Omega@V_{GS}=10V$
- 30V/4.2A, $R_{DS(ON)}=50m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- TSOP-6 package design

Applications

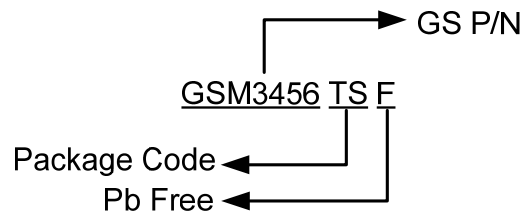
- Power Management in Note book
- LED Display
- DC-DC System
- LCD Panel

Packages & Pin Assignments

GSM3456TSF(TSOP-6)	
	
Pin	Description
1	Drain
2	Drain
3	Gate
4	Source
5	Drain
6	Drain

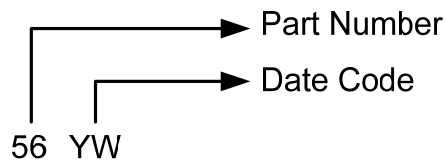


Ordering Information



Part Number	Package	Quantity Reel
GSM3456TSF	TSOP-6	3000 PCS

Marking Information



Absolute Maximum Ratings

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

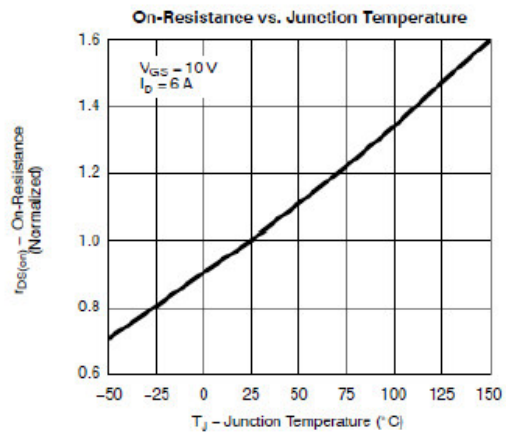
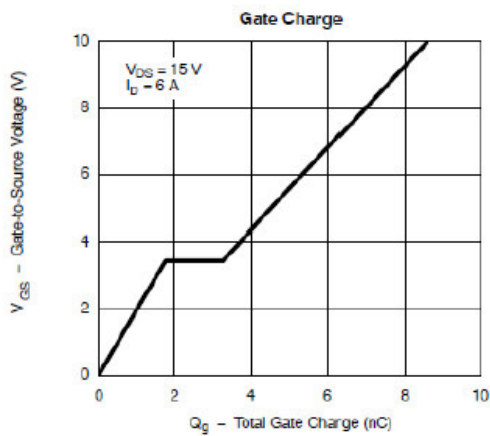
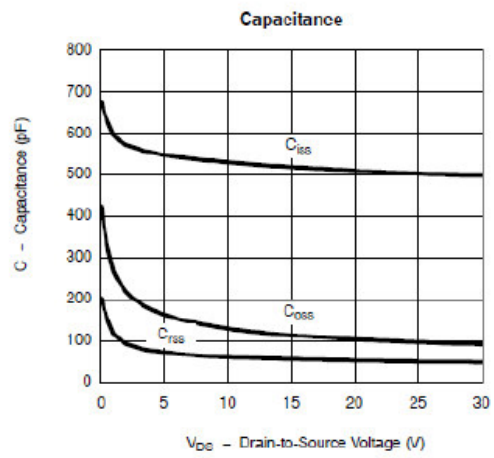
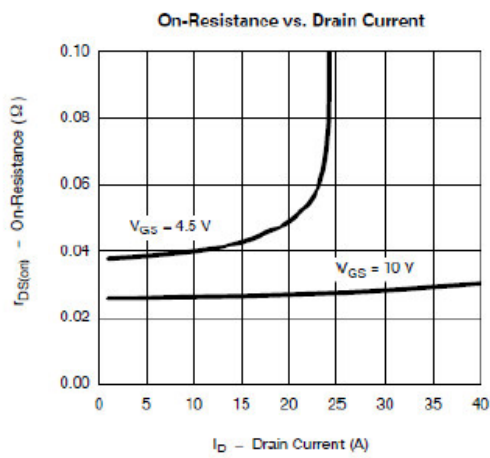
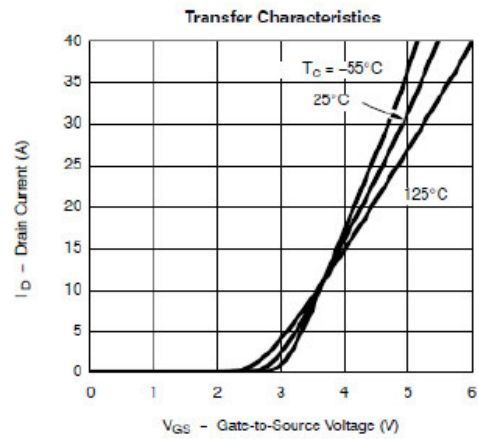
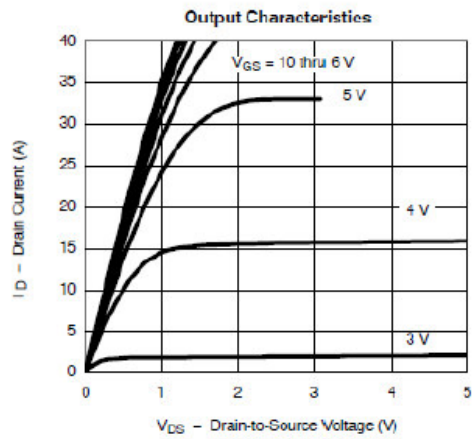
Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	30	V	
V_{GSS}	Gate-Source Voltage	± 20	V	
I_D	Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_A=25^{\circ}\text{C}$	5.6	A
		$T_A=70^{\circ}\text{C}$	4.2	
I_{DM}	Pulsed Drain Current	30	A	
I_S	Continuous Source Current(Diode Conduction)	1.7	A	
P_D	Power Dissipation	$T_A=25^{\circ}\text{C}$	2.0	W
		$T_A=70^{\circ}\text{C}$	1.3	
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	120	$^{\circ}\text{C}/\text{W}$	

Electrical Characteristics

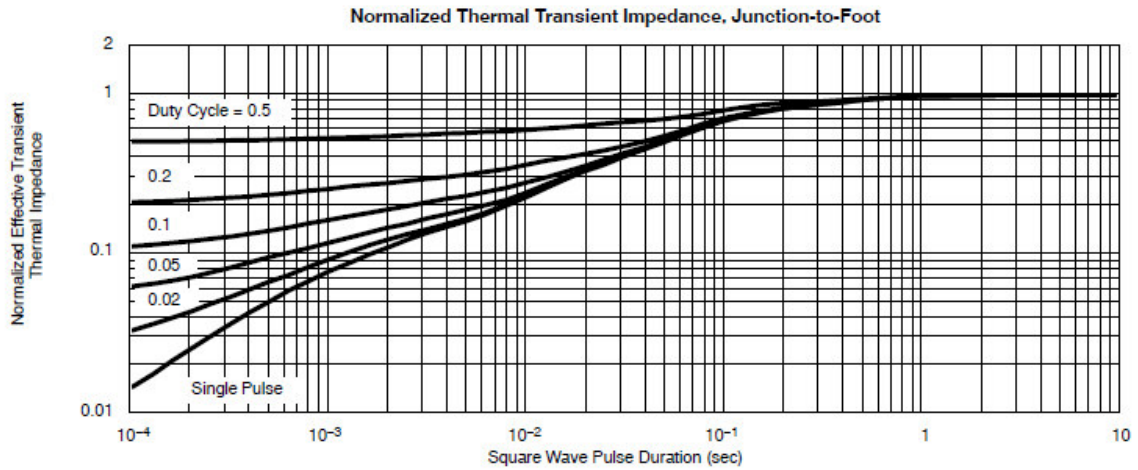
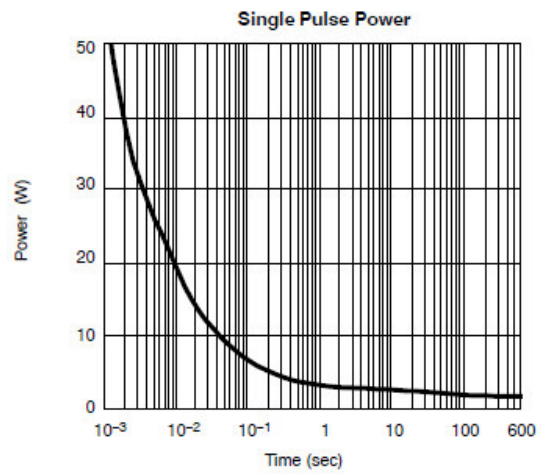
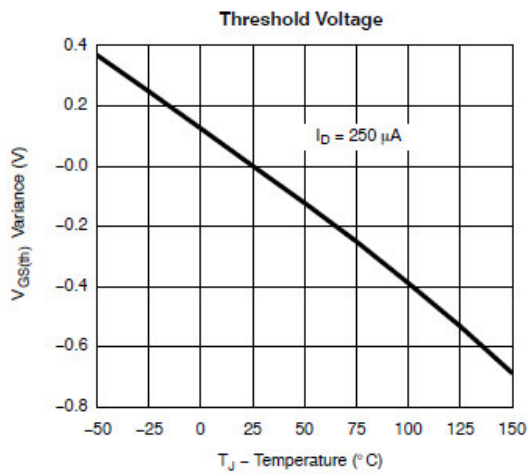
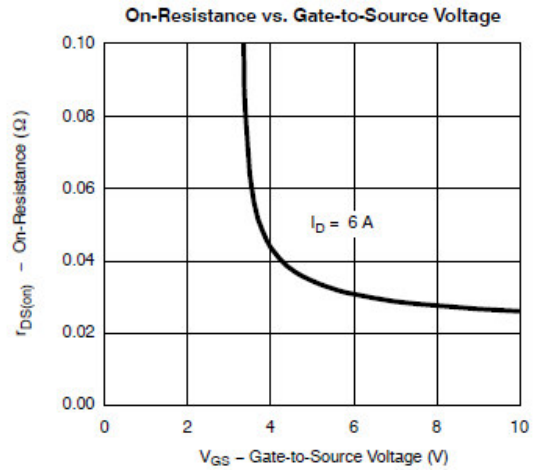
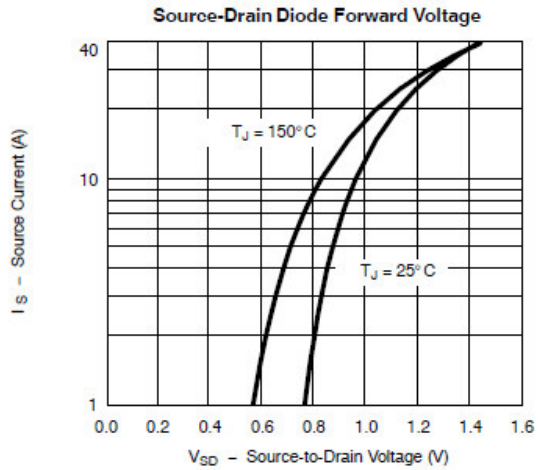
T_A=25°C, unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0		2.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±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°C			30	
I _{D(on)}	On-State Drain Current	V _{DS} ≥4.5V, V _{GS} =10V	6			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =5.6A		34	40	mΩ
		V _{GS} =4.5V, I _D =4.2A		44	50	
g _{FS}	Forward Transconductance	V _{DS} =4.5V, I _D =2.5A		8		S
V _{SD}	Diode Forward Voltage	I _S =2.3A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =2.6A		3.0	4.5	nC
Q _{gs}	Gate-Source Charge			1.6		
Q _{gd}	Gate-Drain Charge			0.6		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		320		pF
C _{oss}	Output Capacitance			70		
C _{rss}	Reverse Transfer Capacitance			30		
t _{d(on)}	Turn-On Time	V _{DD} =15V, R _L =15Ω, I _D =1.0A, V _{GEN} =10V, R _G =6Ω		8	12	ns
t _r				12	18	
t _{d(off)}	Turn-Off Time			15	30	
t _f				8	15	

Typical Performance Characteristics

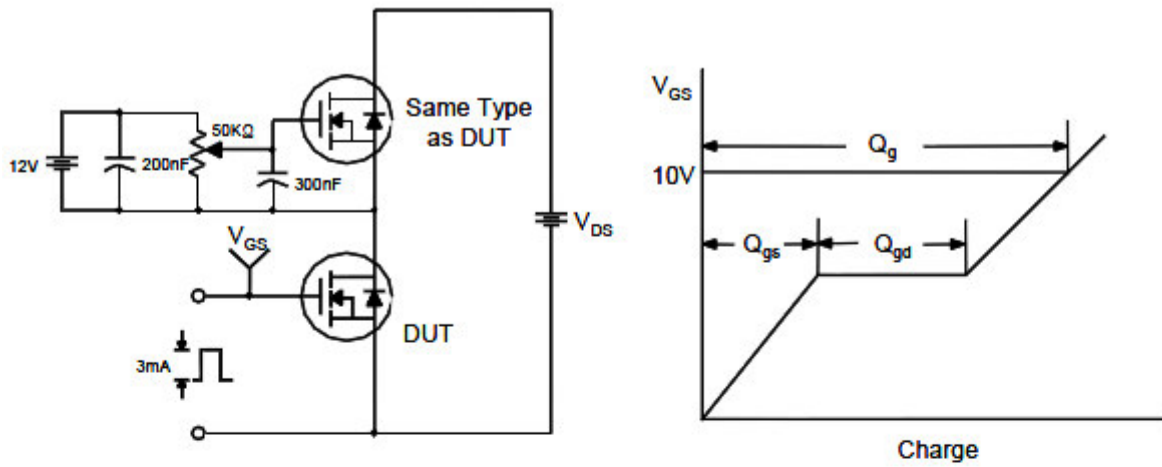


Typical Performance Characteristics (continue)

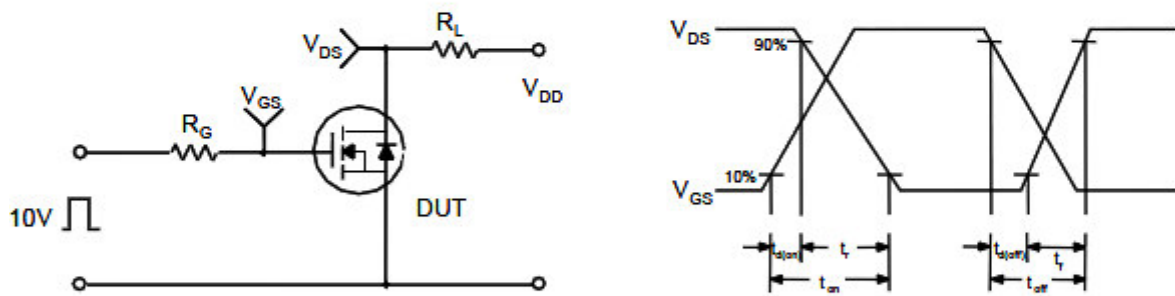


Typical Performance Characteristics (continue)

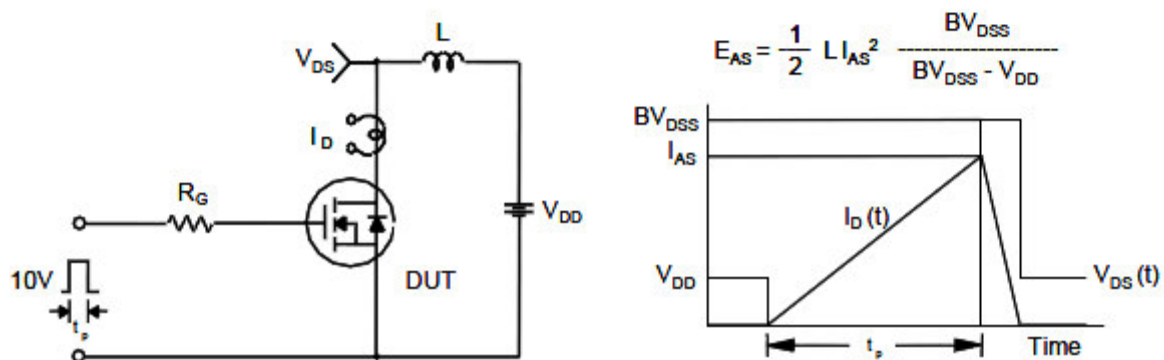
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

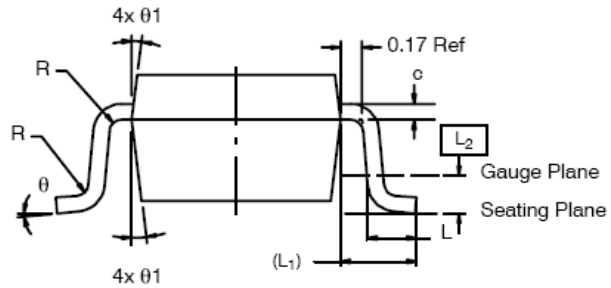
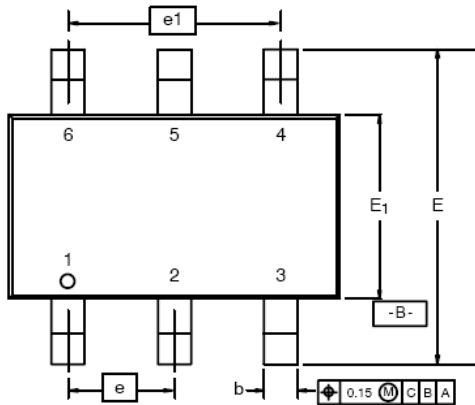


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

TSOP-6







Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.91	-	1.10	0.036	-	0.043
A1	0.01	-	0.10	0.0004	-	0.004
A2	0.90	-	1.00	0.035	0.038	0.039
b	0.30	0.32	0.45	0.012	0.013	0.018
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.95	3.05	3.10	0.116	0.120	0.122
E	2.70	2.85	2.98	0.106	0.112	0.117
E1	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
e1	1.90	2.00	2.10	0.075	0.080	0.085
L	0.35	-	0.50	0.014	-	0.020
L1	0.60 Ref			0.024 Ref		
L2	0.25 BSC			0.010 BSC		
R	0.10	-	-	0.004	-	-
θ	0°	4°	8°	0°	4°	8°
θ1	7° Nom			7° Nom		



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