

GSM8471

60V N-Channel Enhancement Mode MOSFET

Product Description

GSM8471, 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.

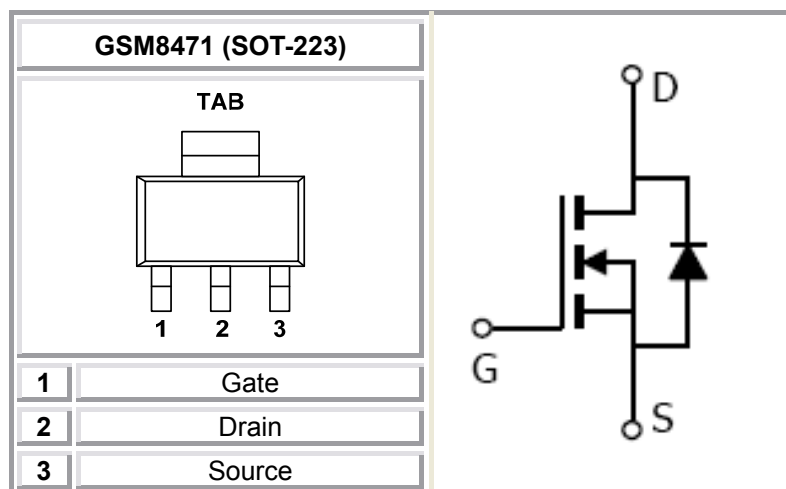
Features

- 60V/5.8A, $R_{DS(ON)}=54m\Omega@V_{GS}=10V$
- 60V/4.6A, $R_{DS(ON)}=60m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-223 package design

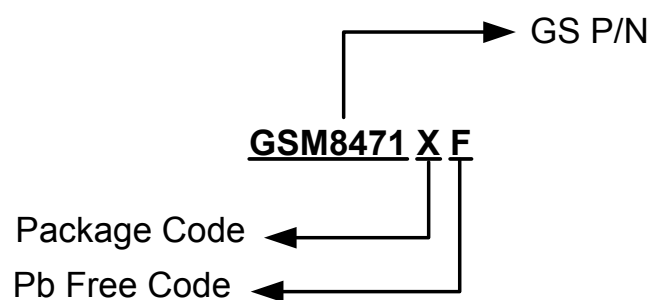
Applications

- Motor and Load Control
- Power Management in White LED System
- Push Pull Converter
- LCD TV Inverter & AC/DC Inverter Systems.

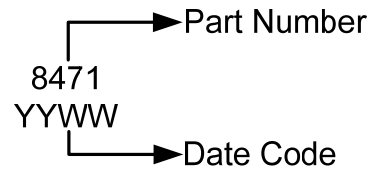
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity Reel
GSM8471XF	SOT-223	8471YYWW	2500PCS

Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	60	V
V _{GSS}	Gate -Source Voltage	±20	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	5.8
		T _A =70°C	4.2
I _{DM}	Pulsed Drain Current	10	A
I _S	Continuous Source Current(Diode Conduction)	1.6	A
P _D	Power Dissipation	T _A =25°C	2.8
		T _A =70°C	1.2
T _J	Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	120	°C/W

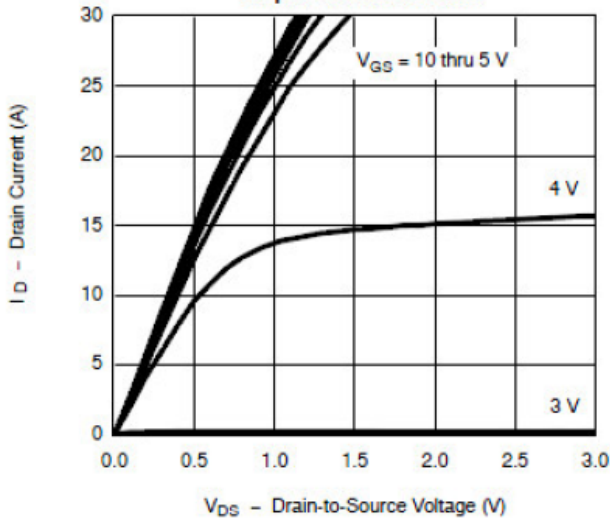
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

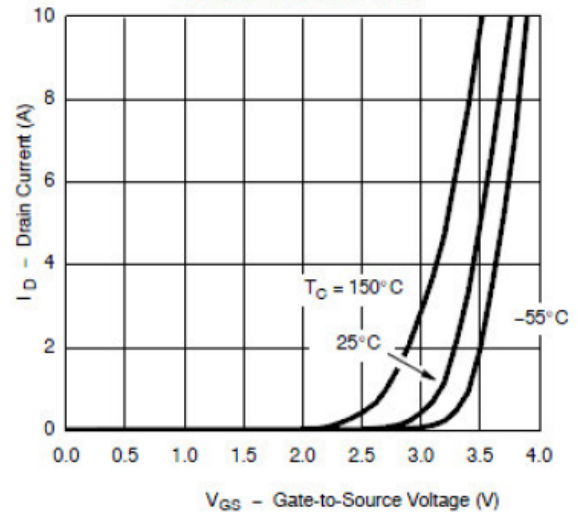
Symbol	Parameter	Conditions	Min.	Typ	Max.	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} =0V			1	μA
		V _{DS} = 60V, V _{GS} =0V, T _J =85°C			5	
I _{D(on)}	On-State Drain Current	V _{DS} ≥ 5.0V, V _{GS} =4.5V	10			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =5.8A		48	54	mΩ
		V _{GS} =4.5V, I _D =4.2A		54	60	
g _{FS}	Forward Transconductance	V _{DS} =15V, I _D =2.4A		24		S
V _{SD}	Diode Forward Voltage	I _S =1.6A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =5V, I _D ≒3.0A		10	15	nC
Q _{gs}	Gate-Source Charge			3.5		
Q _{gd}	Gate-Drain Charge			3.6		
C _{ISS}	Input Capacitance	V _{DS} =30V, V _{GS} =0V f=1MHz		890		pF
C _{OSS}	Output Capacitance			85		
C _{RSS}	Reverse Transfer Capacitance			48		
td(on)	Turn-On Time	V _{DD} =30V, R _L =6.8Ω I _D ≒3.0A, V _{GEN} =4.5V R _G =6Ω		10	15	ns
tr				12	20	
td(off)	Turn-Off Time			25	35	
tf				10	15	

Typical Performance Characteristics

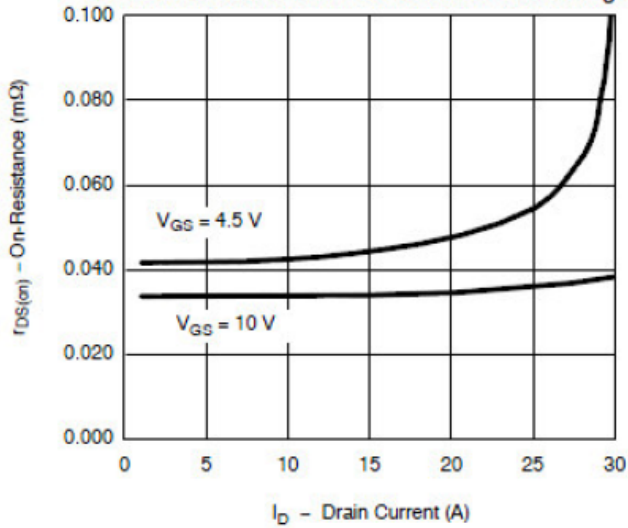
Output Characteristics



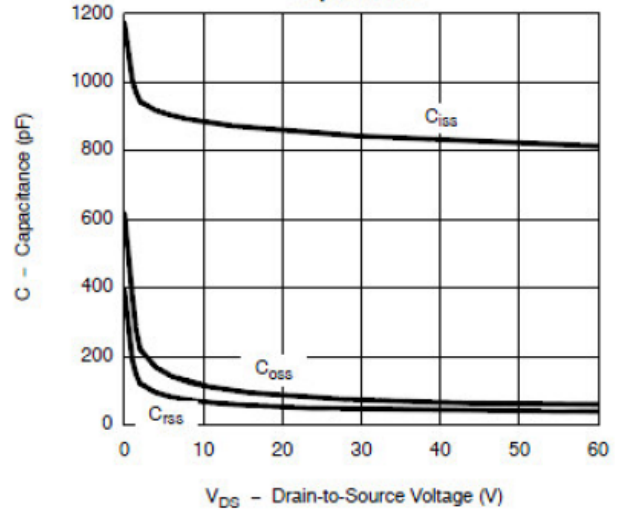
Transfer Characteristics



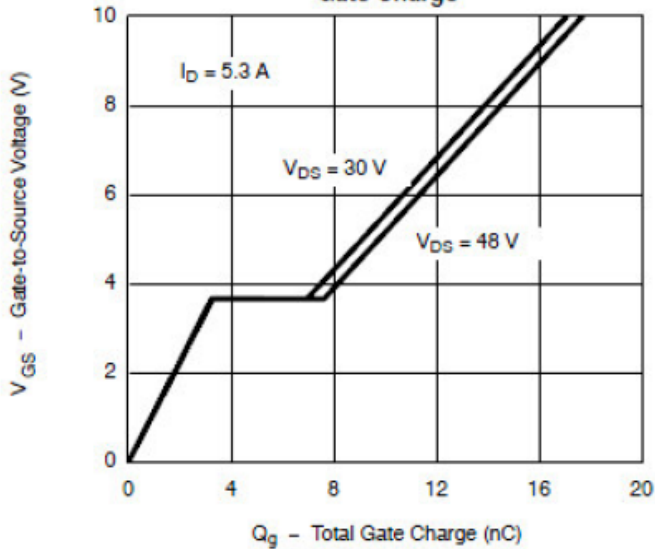
On-Resistance vs. Drain Current and Gate Voltage



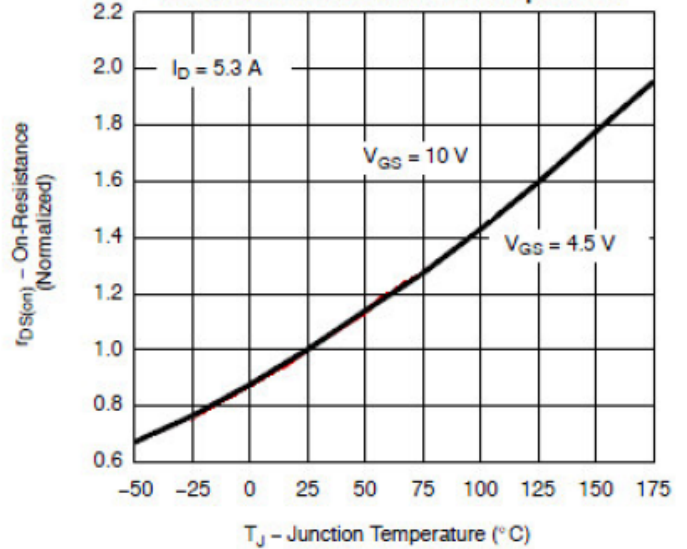
Capacitance



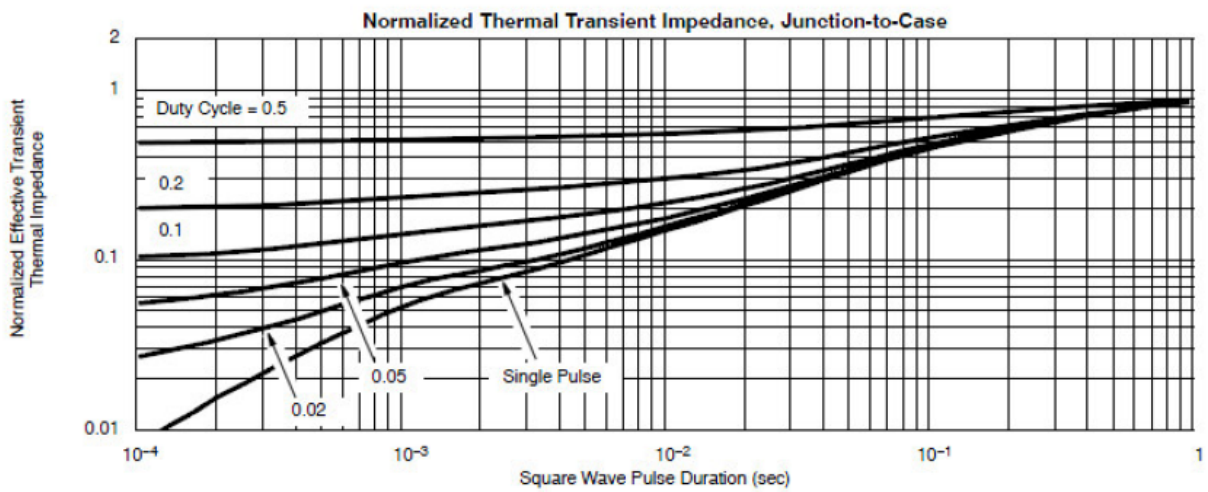
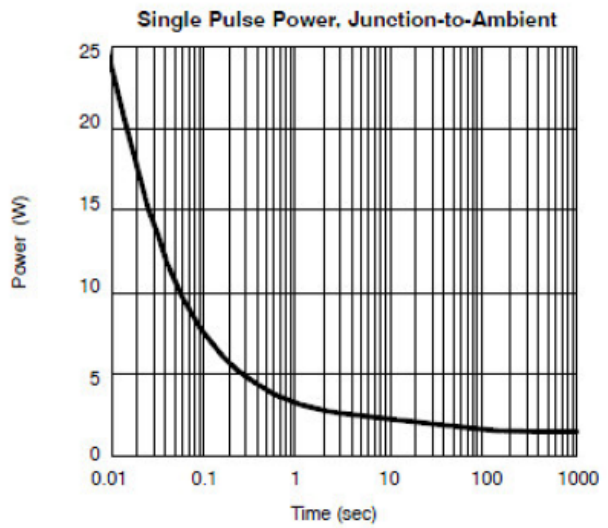
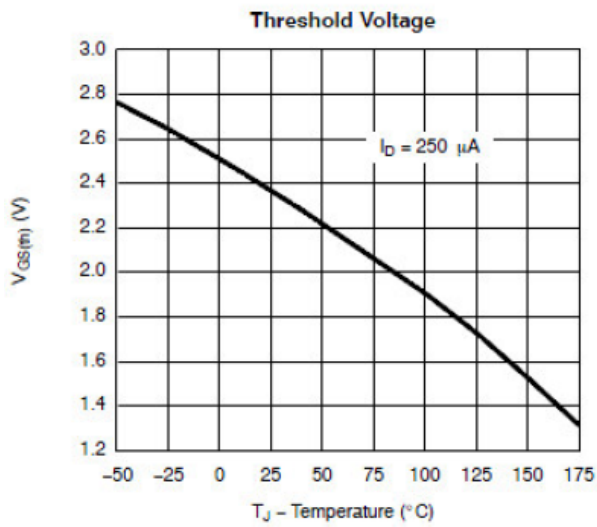
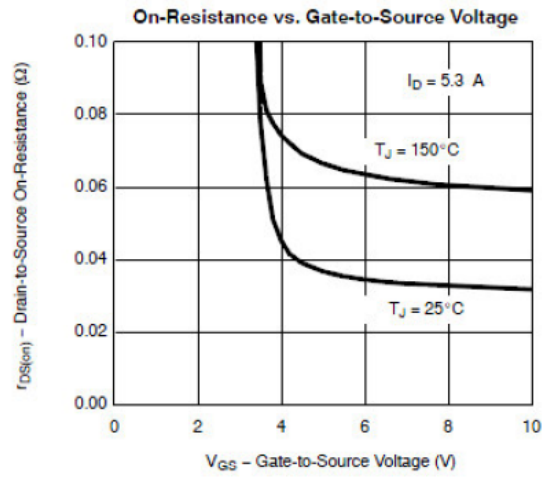
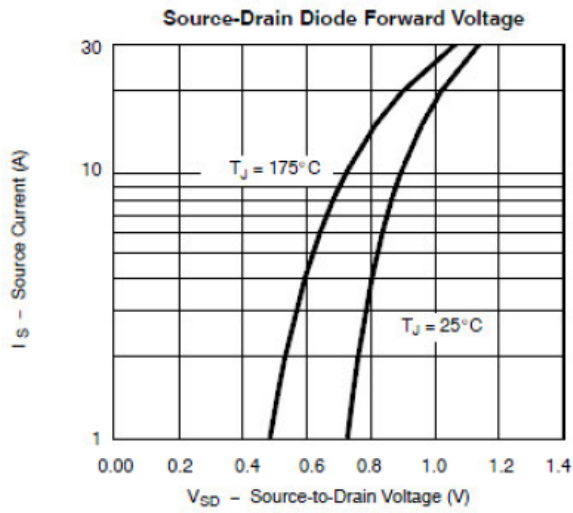
Gate Charge



On-Resistance vs. Junction Temperature

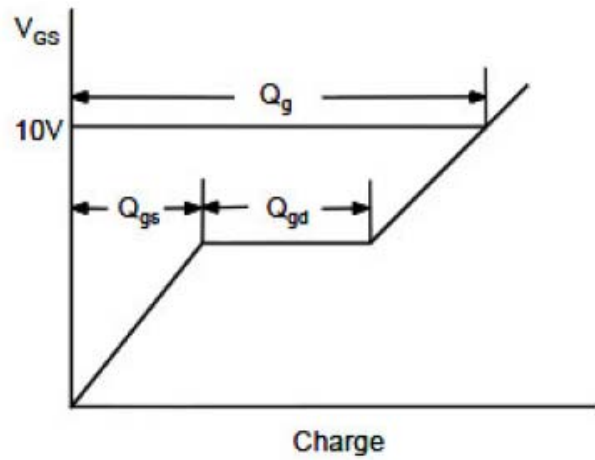
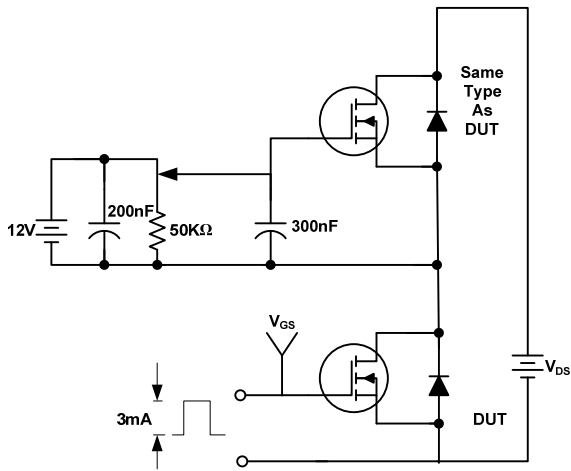


Typical Performance Characteristics(continue)

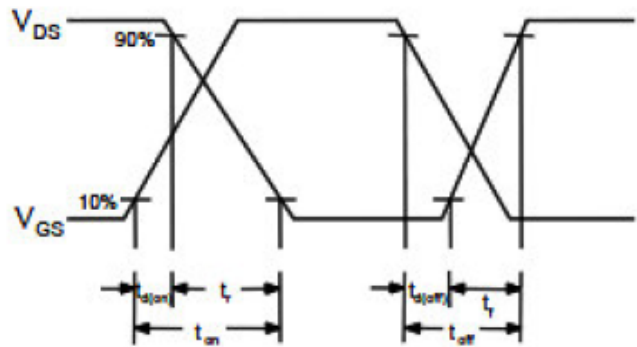
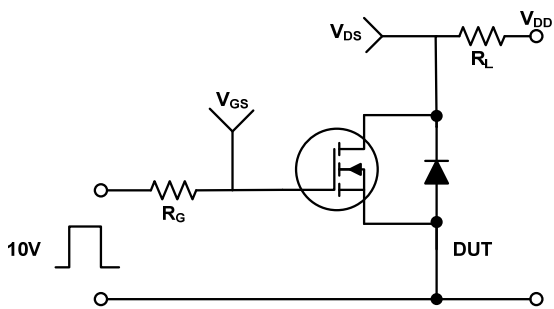


Typical Performance Characteristics(continue)

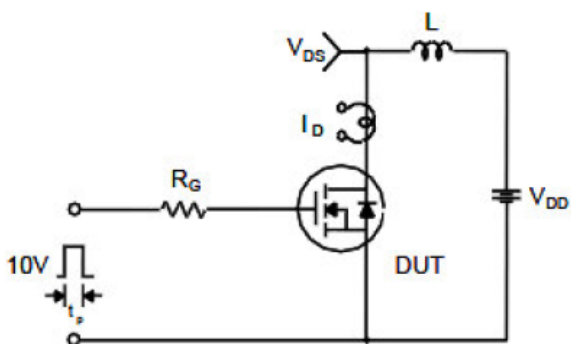
Gate Charge Test Circuit & Waveform



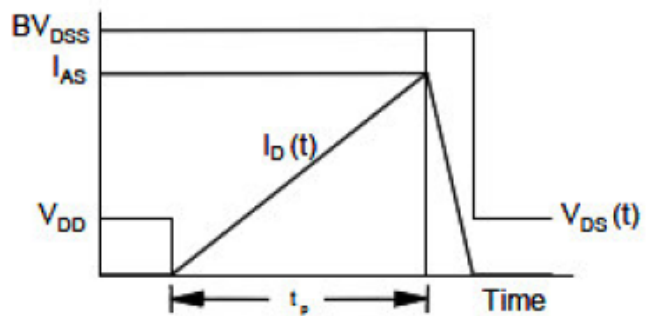
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

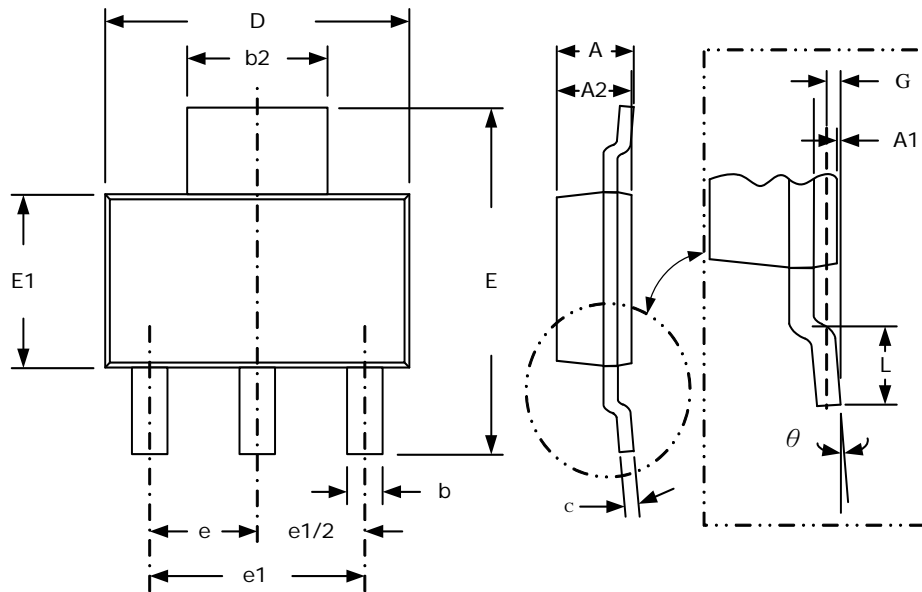


$$E_{AS} = \frac{1}{2} L I_{AS}^2 \frac{BV_{DSS}}{BV_{DSS} - V_{DD}}$$



Package Dimension

SOT-223 PLASTIC PACKAGE





Dimensions



SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	-	1.80	-	.071
A1	0.02	0.10	.001	.004
A2	1.55	1.65	.061	.065
b	0.66	0.84	.026	.033
b2	2.90	3.10	.114	.122
c	0.23	0.33	.009	.013
D	6.30	6.70	.248	.264
E	6.70	7.30	.264	.288
E1	3.30	3.70	.130	.146
e	2.30 (TYP)		.091 (TYP)	
e1	4.60 (TYP)		.181 (TYP)	
L	0.90	-	.035	-
G	0.25 (TYP)		.010 (TYP)	
θ	0°	8°	0°	8°


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