

GSM9107

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM9107, 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.

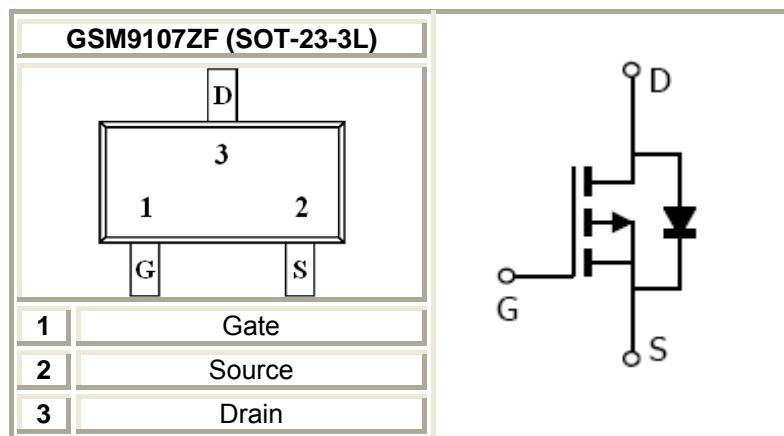
Features

- -30V/-4.0A, $R_{DS(ON)}=65m\Omega@V_{GS}=-10.0V$
- -30V/-3.2A, $R_{DS(ON)}=80m\Omega@V_{GS}=-4.5V$
- -30V/-1.0A, $R_{DS(ON)}=105m\Omega@V_{GS}=-2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-23-3L package design

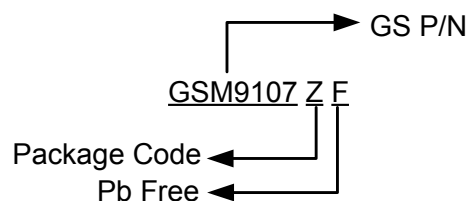
Applications

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

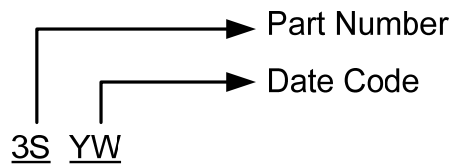
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM9107ZF	SOT-23-3L	3SYW

Absolute Maximum Ratings

TA=25°C unless otherwise noted

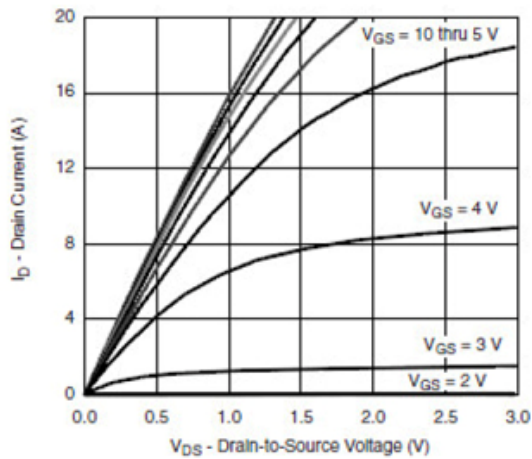
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	-30	V	
V _{GSS}	Gate –Source Voltage	±12	V	
I _D	Continuous Drain Current(T _J =150°C)	TA=25°C	-4.0	A
		TA=70°C	-3.2	
I _{DM}	Pulsed Drain Current	-15	A	
I _S	Continuous Source Current(Diode Conduction)	-1.5	A	
P _D	Power Dissipation	TA=25°C	1.25	W
		TA=70°C	0.8	
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

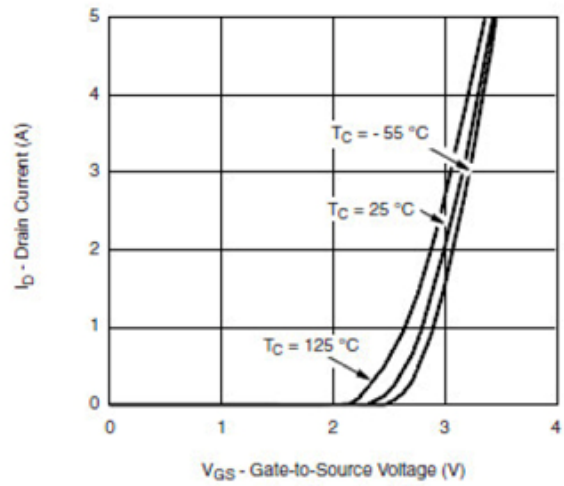
TA=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
Static							
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30			V	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.6		-1.1		
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$			-1	uA	
		$V_{DS}=-24V, V_{GS}=0V$ $T_A=85^\circ C$			-30		
$I_{D(on)}$	On-State Drain Current	$V_{DS} \leq -5V, V_{GS}=-4.5V$	-6			A	
		$V_{DS} \leq -5V, V_{GS}=-2.5V$	-3				
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-4.0A$		55	65	mΩ	
		$V_{GS}=-4.5V, I_D=-3.2A$		65	80		
		$V_{GS}=-2.5V, I_D=-1.0A$		82	105		
g_{fs}	Forward Transconductance	$V_{DS}=-5.0V, I_D=-2.8A$		6.5		S	
V_{SD}	Diode Forward Voltage	$I_S=-1.0A, V_{GS}=0V$		-0.7	-1.3	V	
Dynamic							
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			
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			
$t_{d(on)}$	Turn-On Time	$V_{DD}=-15V,$ $R_L=15\Omega, I_D=-1.0A,$ $V_{GEN}=-10V, R_G=6\Omega$		8	18	ns	
t_r				8	18		
$t_{d(off)}$			Turn-Off Time		25		50
t_f					25		35

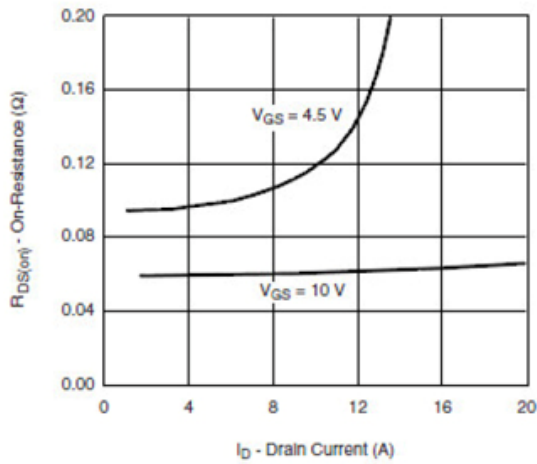
Typical Performance Characteristics



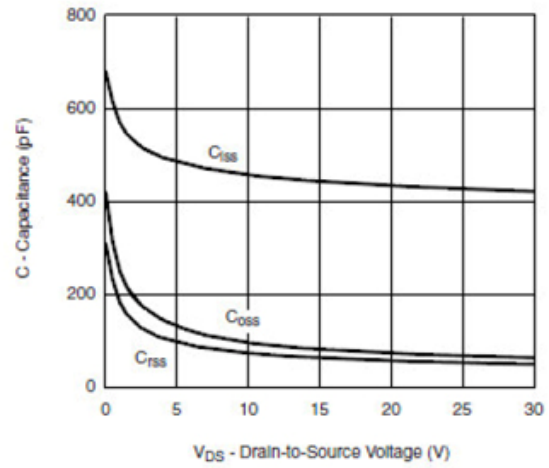
Output Characteristics



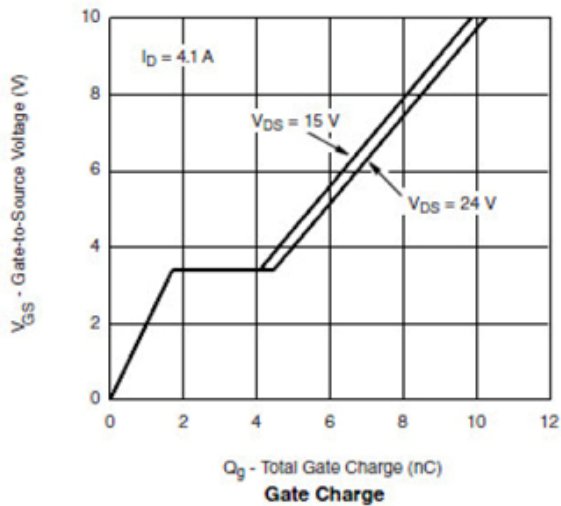
Transfer Characteristics



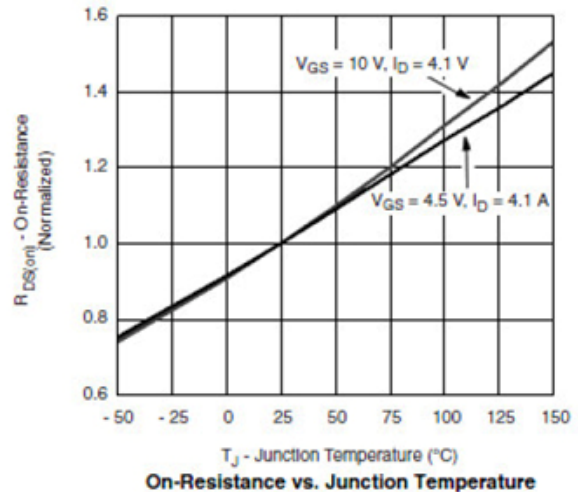
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

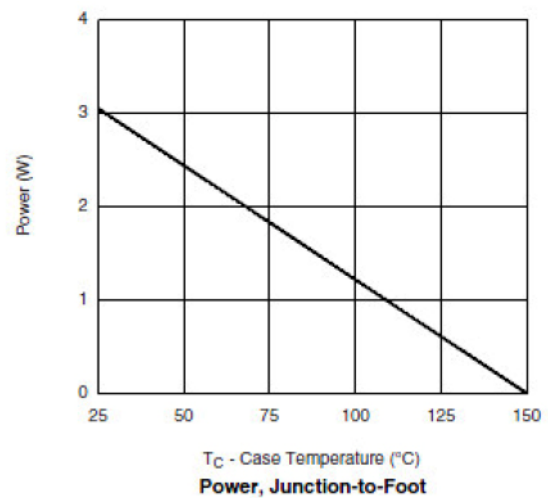
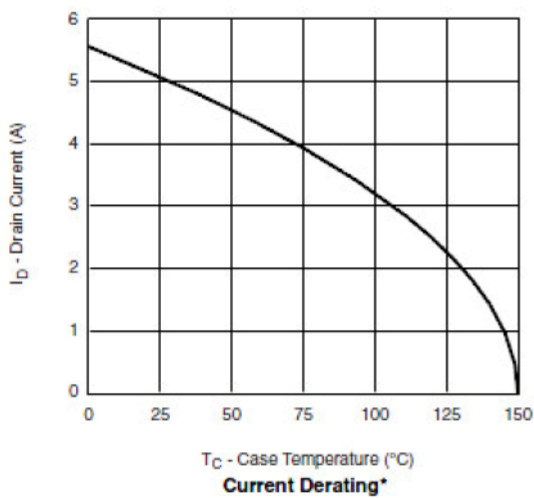
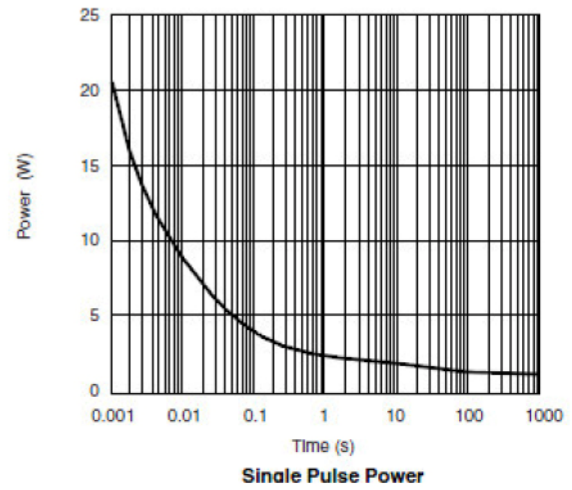
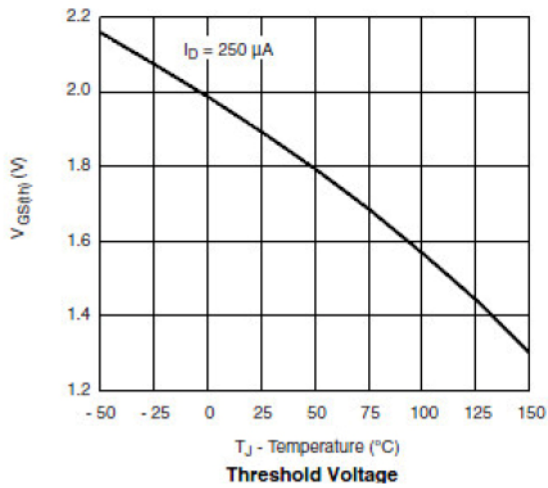
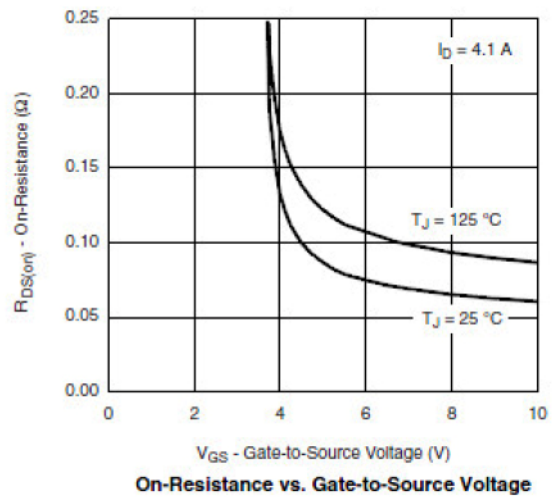
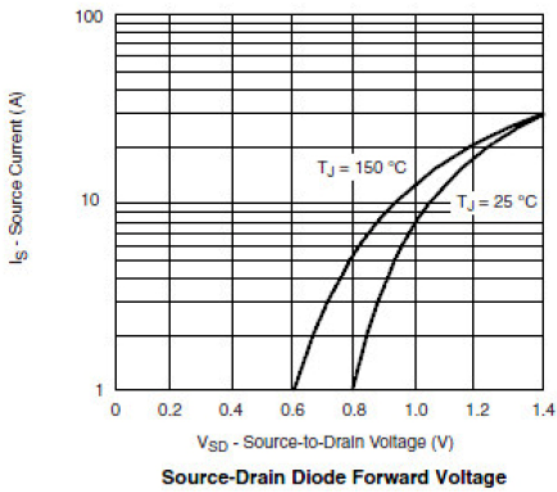


Gate Charge

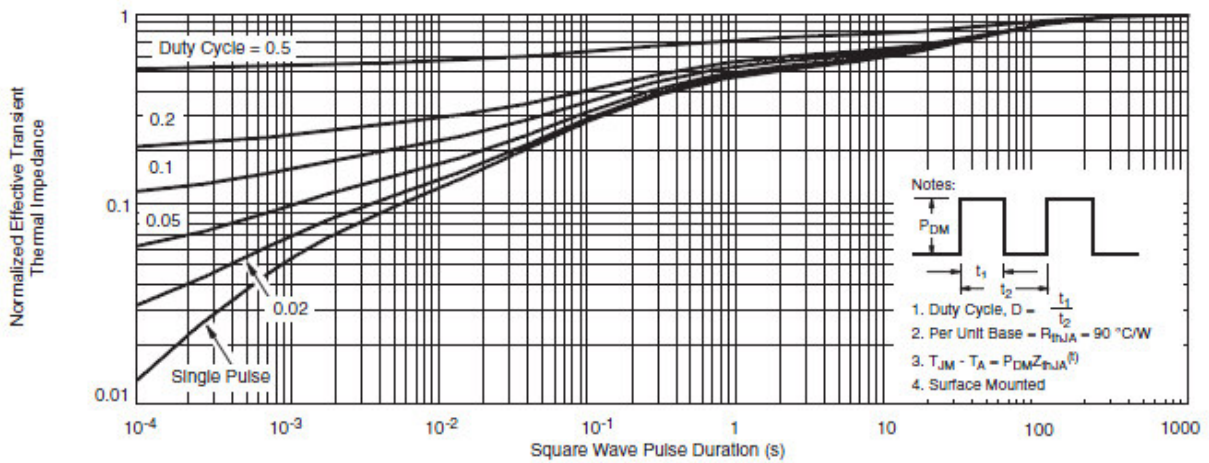


On-Resistance vs. Junction Temperature

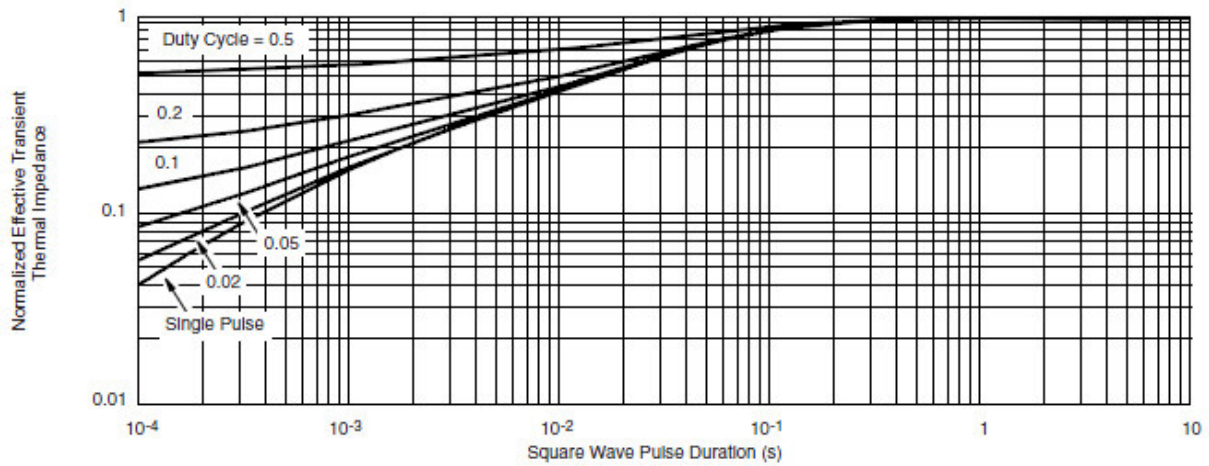
Typical Performance Characteristics (continue)



Typical Characteristics



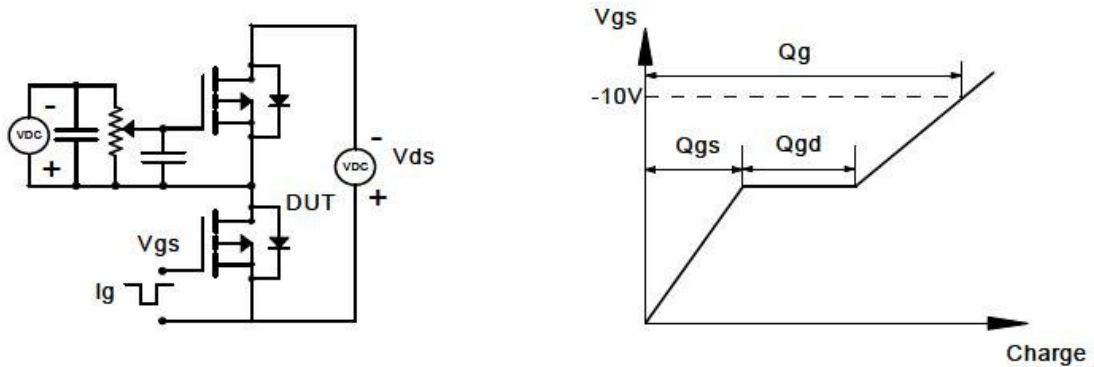
Normalized Thermal Transient Impedance, Junction-to-Ambient



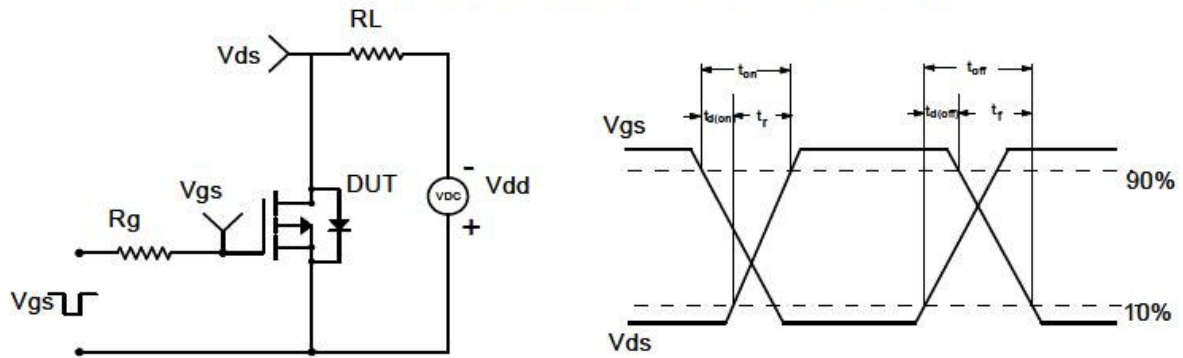
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Characteristics (continue)

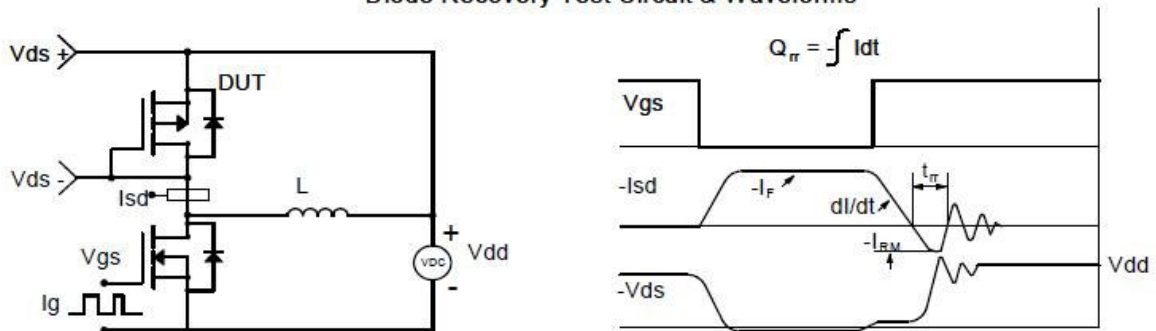
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

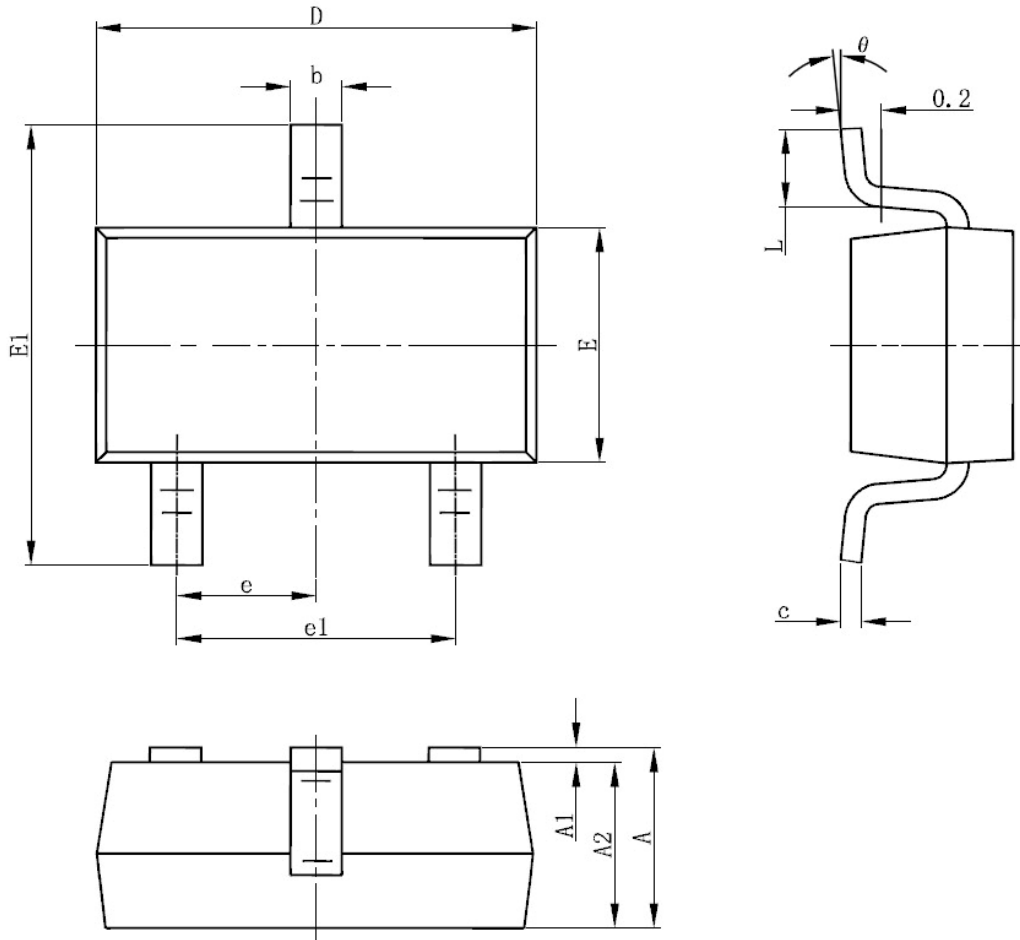


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOT-23-3L







Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.05	1.25	0.041	0.049
A1	0	0.1	0	0.004
A2	1.05	1.15	0.041	0.045
b	0.3	0.5	0.012	0.020
c	0.1	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.950 (TYP)		0.037 (TYP)	
e1	1.8	2	0.071	0.079
L	0.3	0.6	0.012	0.024
Q	0°	8°	0°	8°



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