GSM3401S

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM3401S, 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

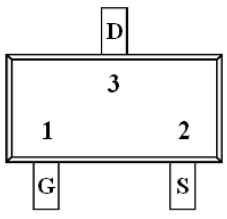
- -30V/-4.0A $R_{DS(ON)}$=65mΩ@V_{GS}=-10V
- -30V/-3.2A $R_{DS(ON)}$=80mΩ@V_{GS}=-4.5V
- -30V/-1.0A $R_{DS(ON)}$=105mΩ@V_{GS}=-2.5V
- Suit for -2.5V Gate Drive Applications

Applications

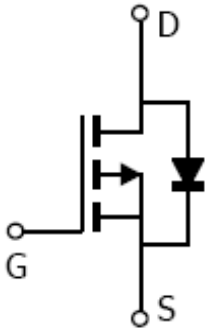
- Notebook
- LED Display
- DC-DC System
- LCD Panel

Packages & Pin Assignments

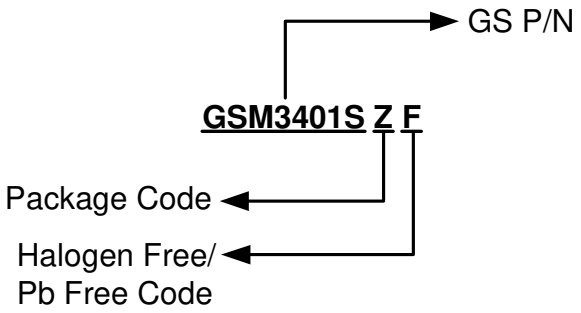
GSM3401SZF(SOT-23)



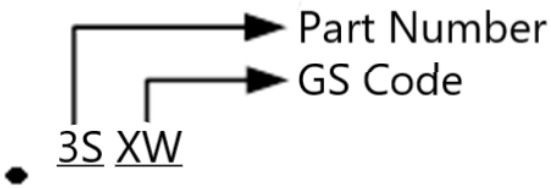
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM3401SZF	SOT-23	3SXW	3000PCS

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	-4.0	A
		T_A=70ºC	-3.2	
I_{DM}	Pulsed Drain Current		-15	A
I_S	Continuous Source Current(Diode Conduction)		-1.5	A
P_D	Power Dissipation	T_A=25ºC	1.25	W
		T_A=70ºC	0.8	
T_J	Operating Junction Temperature		150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		120	ºC/ W

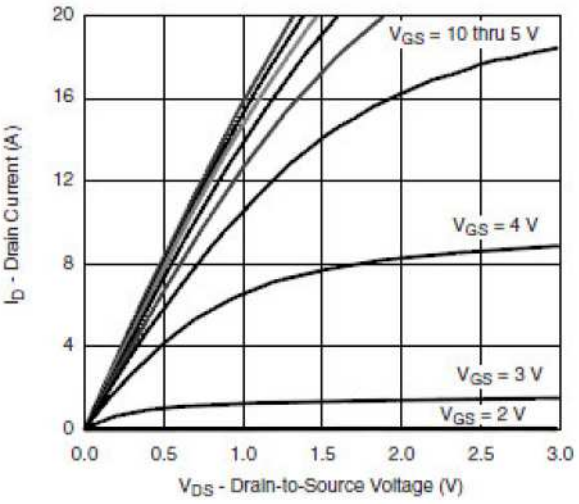
Electrical Characteristics

T_A=25ºC unless otherwise noted

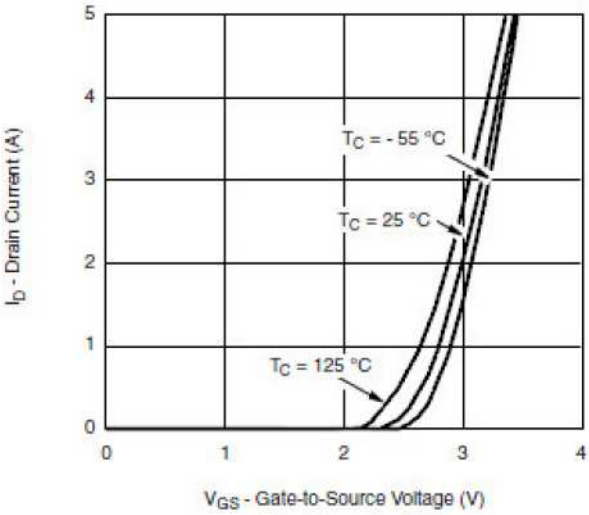
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-0.6		-1.1	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V,V_{GS}=0V			-1	uA
		V_{DS}=-24V, V_{GS}=0V,T_A=85ºC			-30	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10.0V,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						
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=6.0Ω		8	18	ns
T_r				8	18	
$t_{d(off)}$	Turn-Off Time			25	50	
T_f				25	35	

Typical Performance Characteristics

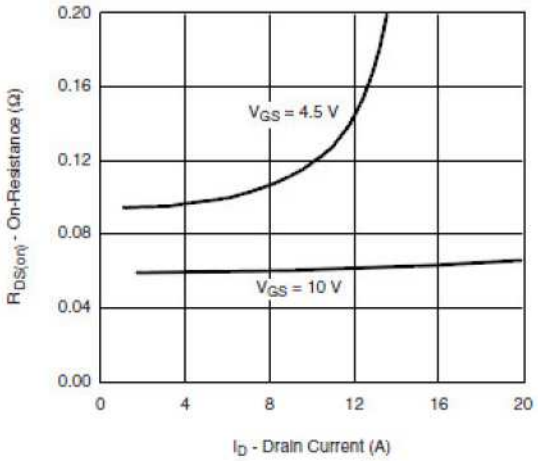
Output Characteristics



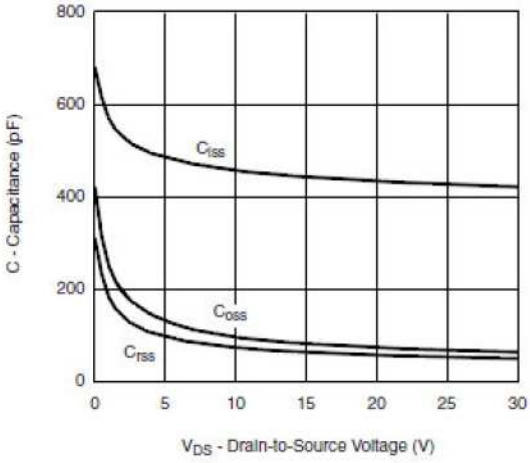
Transfer Characteristics



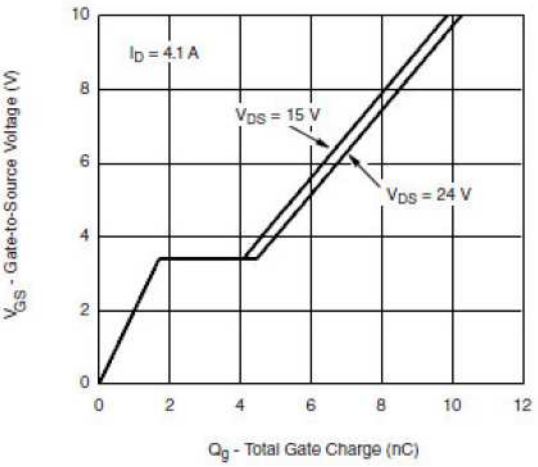
On-Resistance vs. Drain Current and Gate Voltage



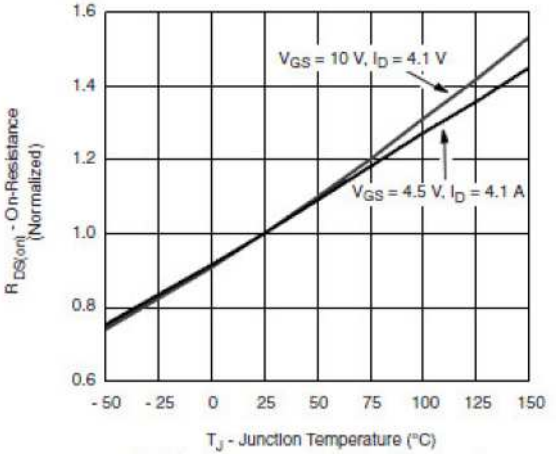
Capacitance



Gate Charge

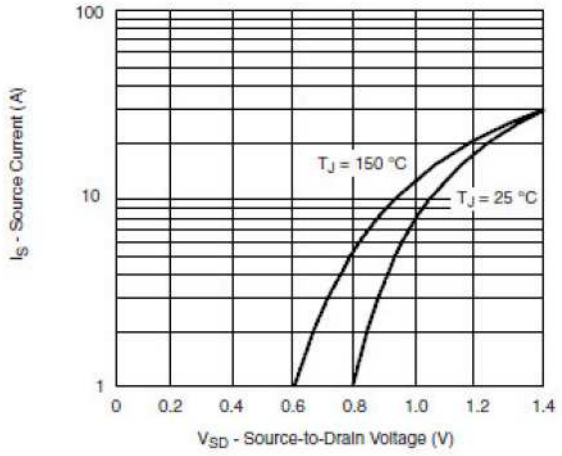


On-Resistance vs. Junction Temperature

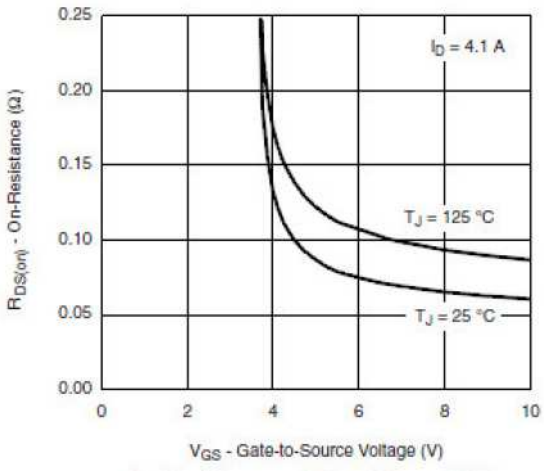


Typical Performance Characteristics (continue)

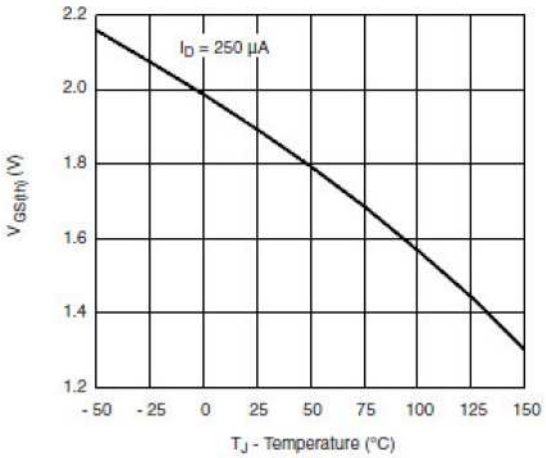
Source-Drain Diode Forward Voltage



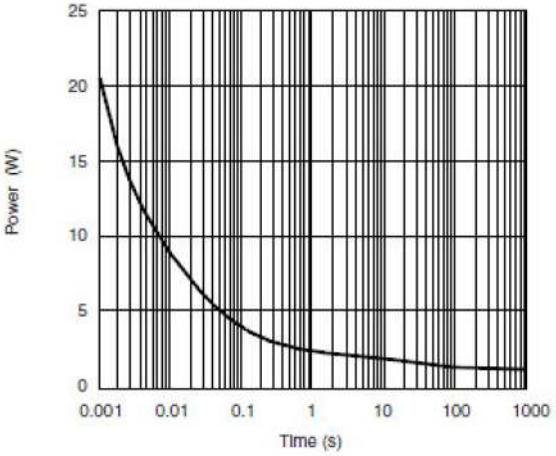
On-Resistance vs. Gate-to-Source Voltage



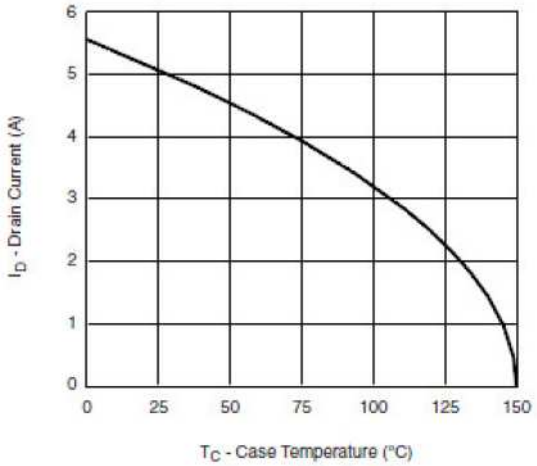
Threshold Voltage



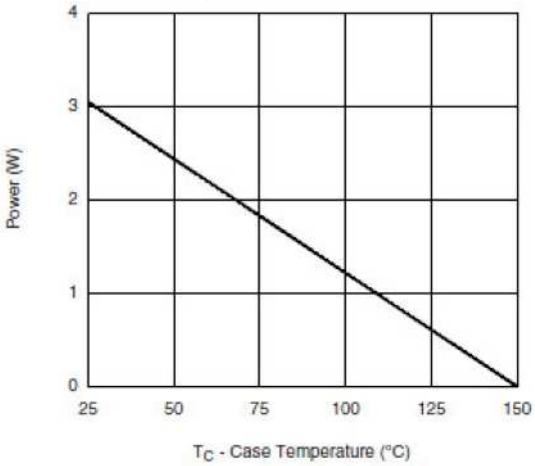
Single Pulse Power



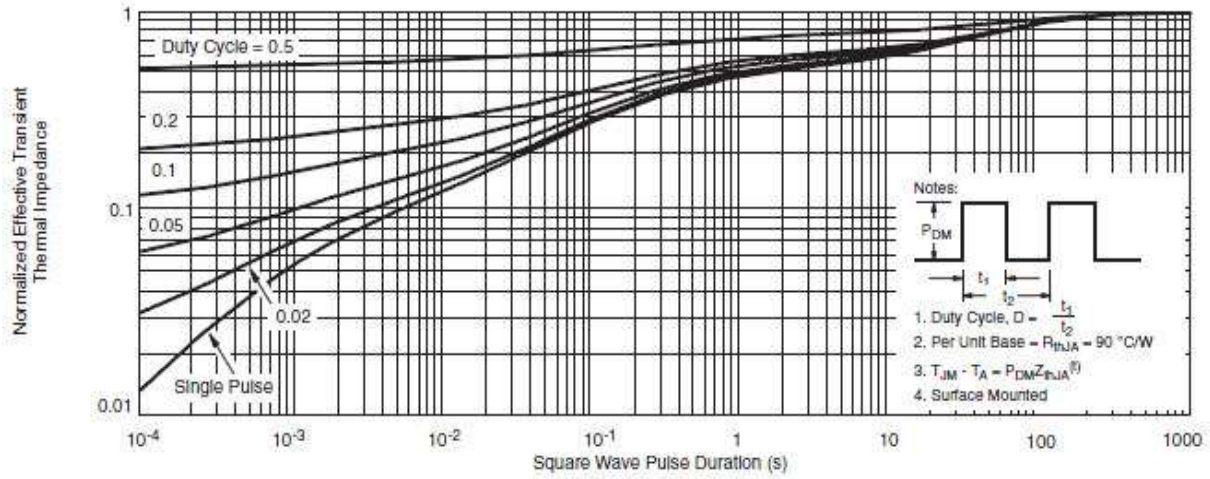
Current Dating*



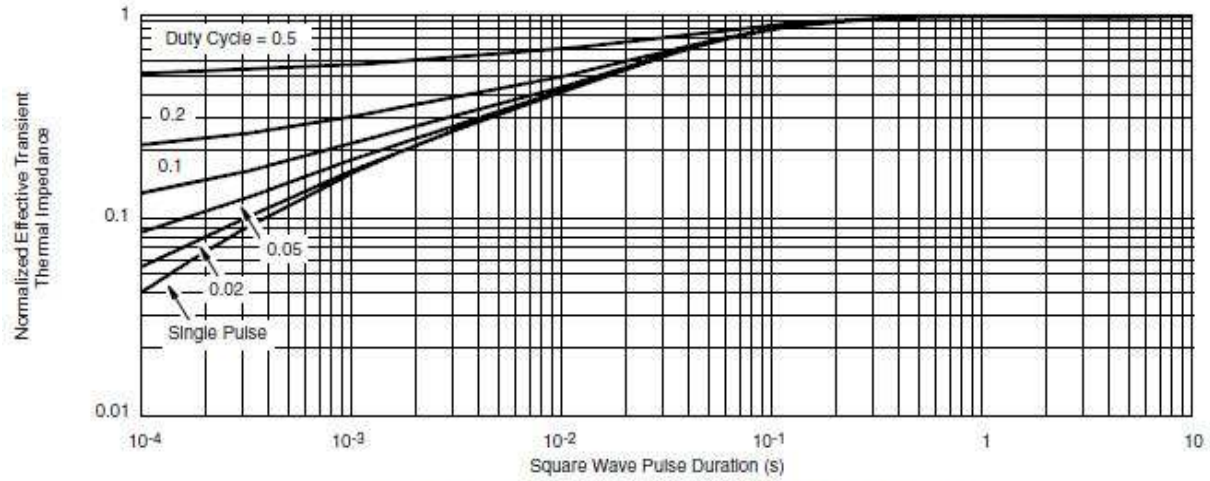
Power, Junction-to-Foot



Typical Performance Characteristics (continue)



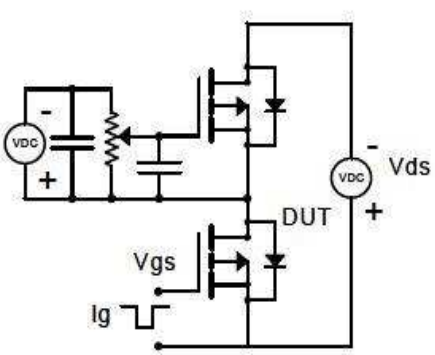
Normalized Thermal Transient Impedance, Junction-to-Ambient

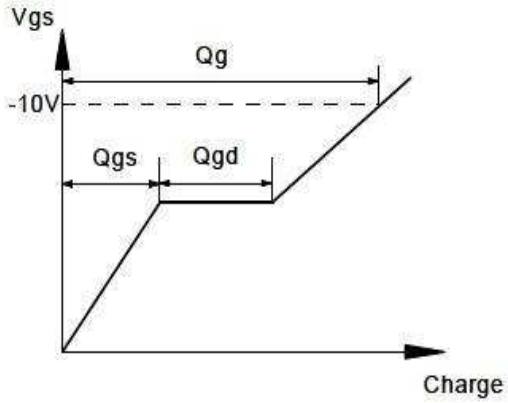


Normalized Thermal Transient Impedance, Junction-to-Foot

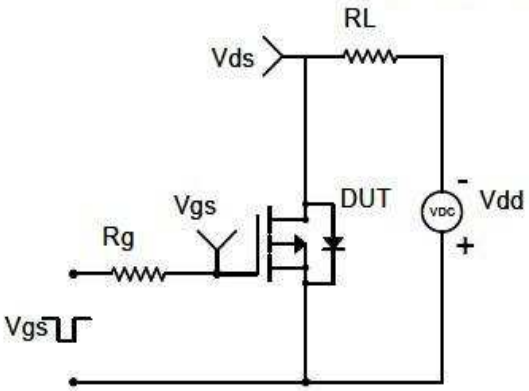
Typical Performance Characteristics (continue)

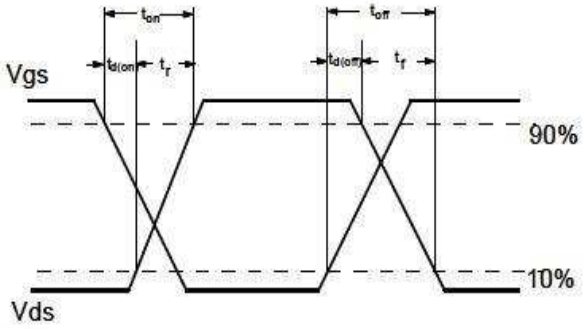
Gate Charge Test Circuit & Waveform



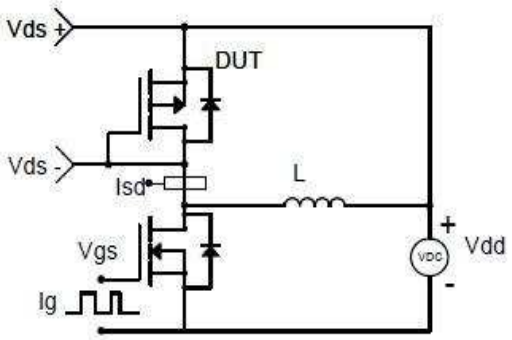


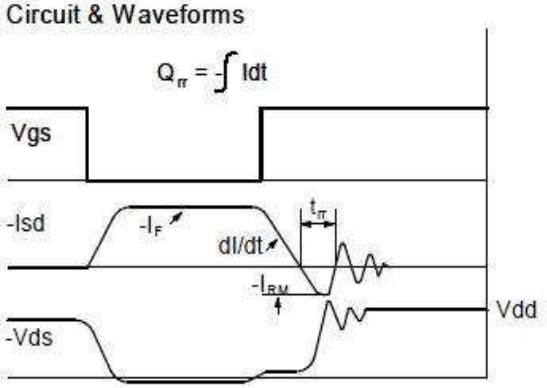
Resistive Switching Test Circuit & Waveforms





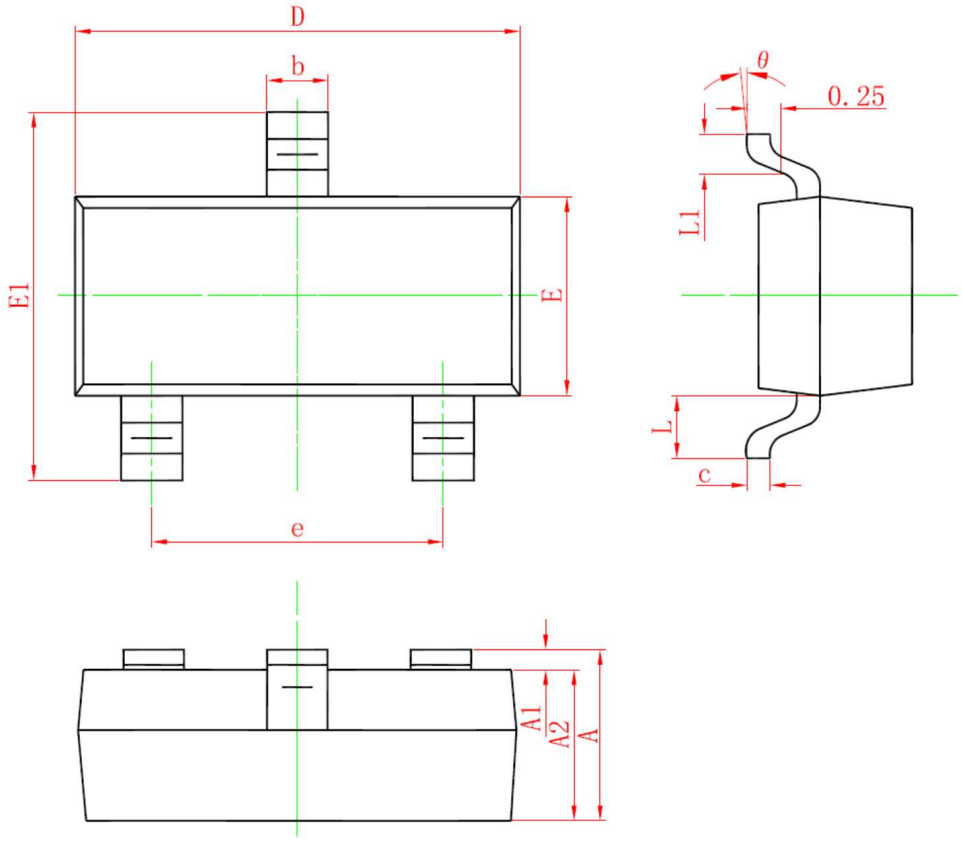
Diode Recovery Test Circuit & Waveforms





Package Dimension

SOT-23



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.043
b	0.300	0.500	0.012	0.020
c	0.132	0.202	0.005	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0º	8º	0º	8º

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