



Dual channel N-Channel MOSFE

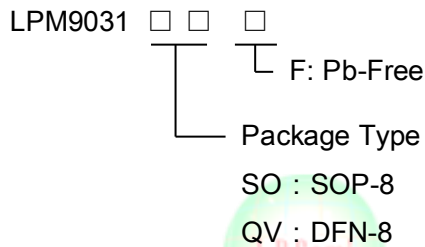
General Description

The LPM9031 is a dual channel MOSFET, which combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is suitable for use as a load switch or in PWM applications.

Features

- ◆ 100% EAS Guaranteed
- ◆ Green Device Available
- ◆ Super Low Gate Charge
- ◆ Excellent CdV/dt effect decline
- ◆ Advanced high cell density Trench technology

Order Information



Pin Description

Pin Number		Pin Description
SOP-8	DFN_8	
1	5,6,7	S2
2	8	G2
3	PAD_2	S1
4	1	G1
5,6	2,3,4,PAD_1	D1
7,8	PAD_2	D2

Applications

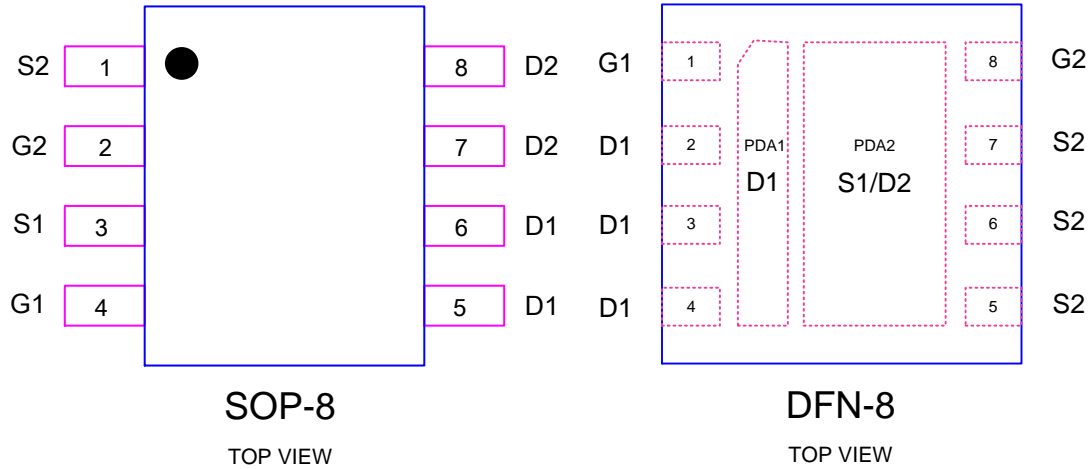
- ✧ Driver for Relay, Solenoid, Motor, LED etc.
- ✧ DC-DC converter circuit
- ✧ Power Switch
- ✧ Load Switch
- ✧ Charging

Marking Information

Device	Marking	Package	Shipping
LPM9031SOF	LPS LPM9031 YWX	SOP-8	4K/REEL
LPM9031QVF	LPS 9031 YWX	DFN-8	5K/REEL
Y:Production year W:Production period X:Production batch			



Pin Configurations



Absolute Maximum Ratings

Channel 1 and channel 2 have the same maximum ratings

Parameter	Symbol	Maximum	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	A
		$T_A=70^\circ\text{C}$	
Pulsed Drain Current	I_{DM}	30	
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	W
		$T_A=70^\circ\text{C}$	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal resistance ratings

Parameter	Symbol	TYP	Unit
Junction-to-Case Thermal Resistance	$R_{\theta JA}$	48	$^\circ\text{C/W}$
Junction-to-Case Thermal Resistance		Steady State	74
Maximum Junction-to-Lead	$R_{\theta JL}$	32	$^\circ\text{C/W}$



Electrical Characteristics

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)
Channel 1 and channel 2 have the same electrical characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$ $T_J=55^\circ\text{C}$			1 5	μA
I_{GSS}	Gate-Body leakage current	$V_{DS}=0\text{V}$, $V_{GS}=\pm 12\text{V}$			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	0.65	1.05	1.45	V
$I_{D(ON)}$	On state drain current	$V_{GS}=4.5\text{V}$, $V_{DS}=5\text{V}$	30			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{V}$, $I_D=5.8\text{A}$ $T_J=125^\circ\text{C}$		18 28	28 39	m Ω
		$V_{GS}=4.5\text{V}$, $I_D=5\text{A}$		19	33	
		$V_{GS}=2.5\text{V}$, $I_D=4\text{A}$		24	52	
g_{FS}	Forward Transconductance	$V_{DS}=5\text{V}$, $I_D=5.8\text{A}$		33		S
V_{SD}	Diode Forward Voltage	$I_S=1\text{A}$, $V_{GS}=0\text{V}$		0.7	1	V
I_S	Maximum Body-Diode Continuous Current				2	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance			630		pF
C_{oss}	Output Capacitance	$V_{GS}=0\text{V}$, $V_{DS}=15\text{V}$, $f=1\text{MHz}$		75		pF
C_{rss}	Reverse Transfer Capacitance			50		pF
R_g	Gate resistance	$V_{GS}=0\text{V}$, $V_{DS}=0\text{V}$, $f=1\text{MHz}$	1.5	3	4.5	Ω
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	$V_{GS}=4.5\text{V}$, $V_{DS}=15\text{V}$, $I_D=5.8\text{A}$		6		nC
Q_{gs}	Gate Source Charge			50		nC
Q_{gd}	Gate Drain Charge			3		nC
$t_{D(on)}$	Turn-On DelayTime	$V_{GS}=10\text{V}$, $V_{DS}=15\text{V}$, $R_L=2.6\Omega$, $R_{GEN}=3\Omega$		3		ns
t_r	Turn-On Rise Time			2.5		ns
$t_{D(off)}$	Turn-Off DelayTime			25		ns
t_f	Turn-Off Fall Time			4		ns
t_{rr}	Body Diode Reverse Recovery Time	$I_F=5.8\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		8.5		ns
Q_{rr}	Body Diode Reverse Recovery Charge	$I_F=5.8\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		2.6		nC



Typical Characteristics

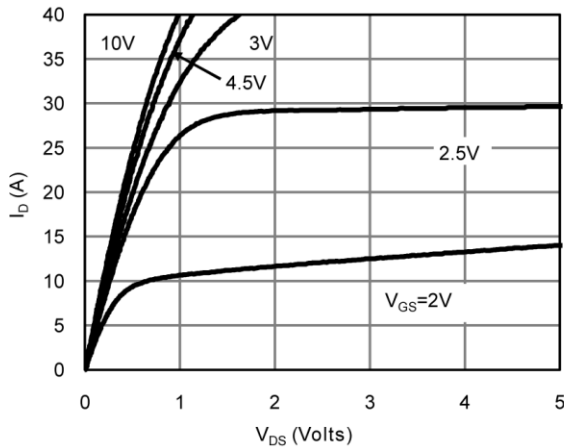


Fig 1: On-Region Characteristics

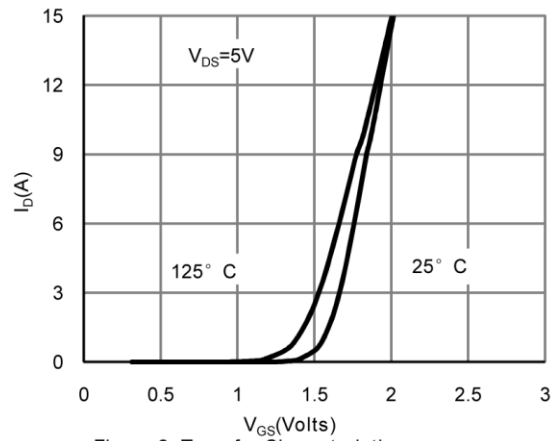


Figure 2: Transfer Characteristics

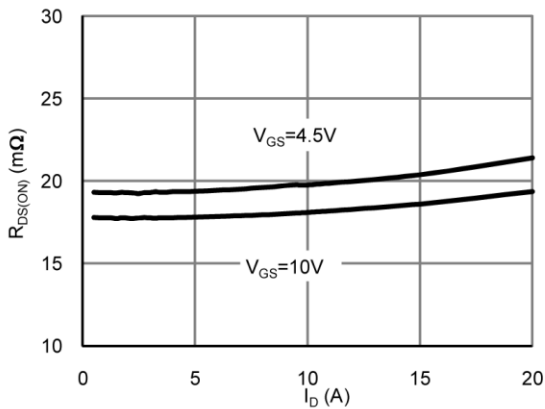


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

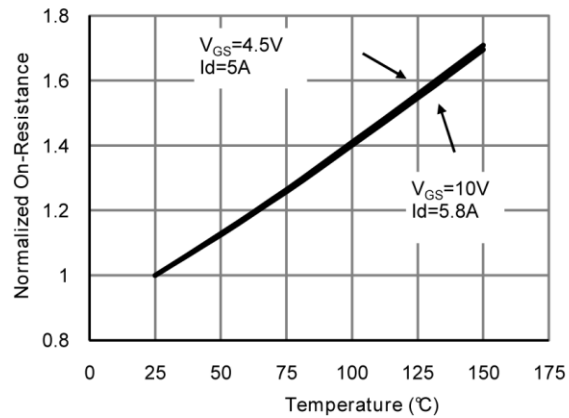


Figure 4: On-Resistance vs. Junction Temperature

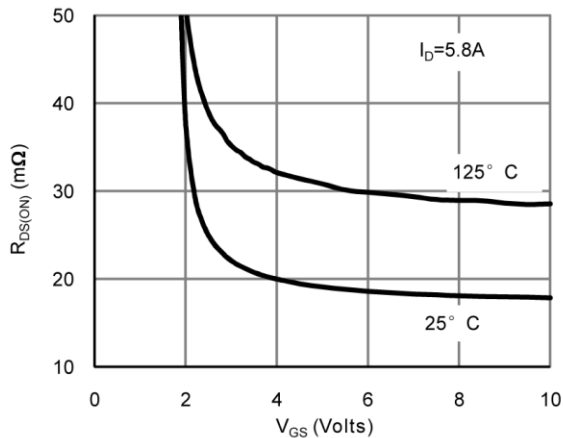


Figure 5: On-Resistance vs. Gate-Source Voltage

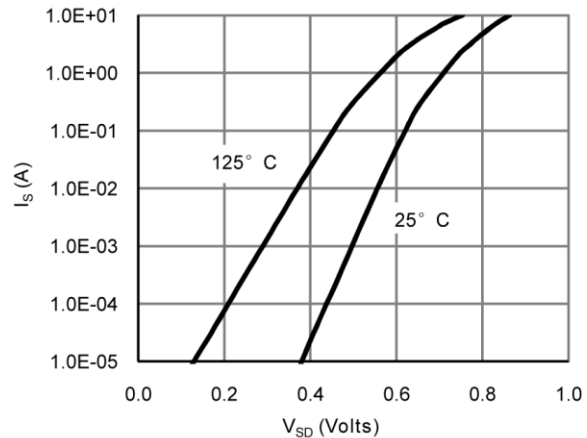
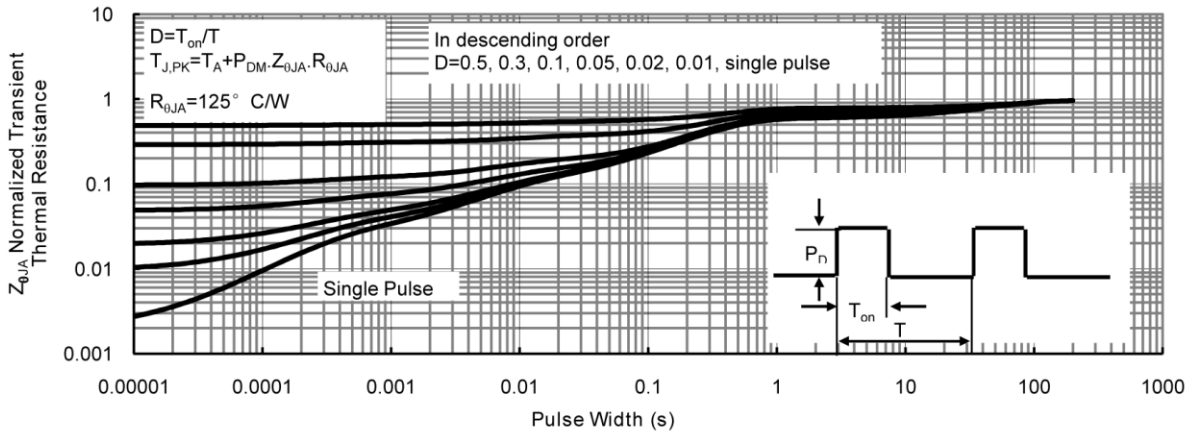
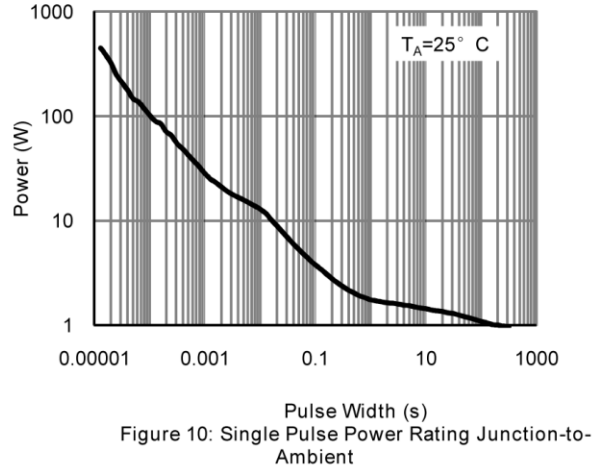
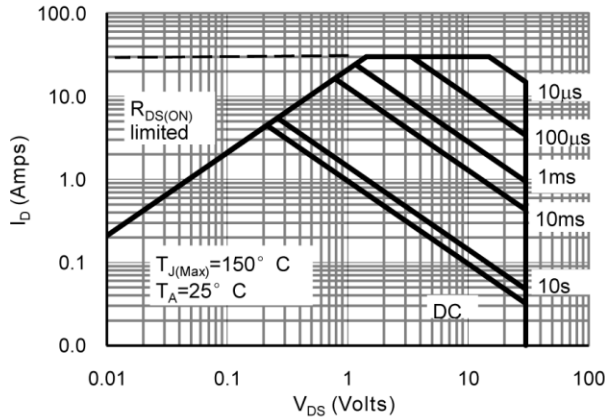
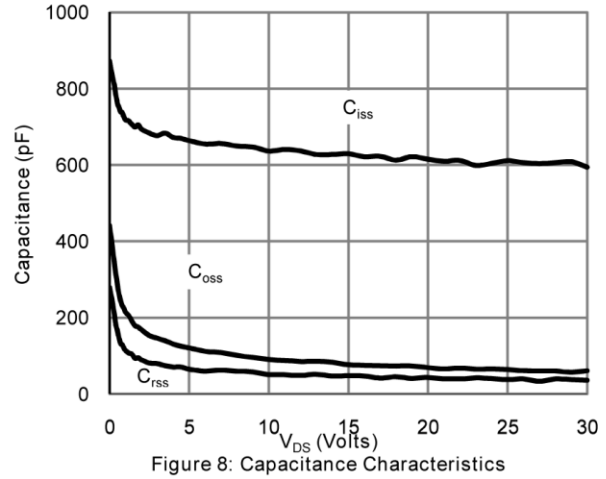
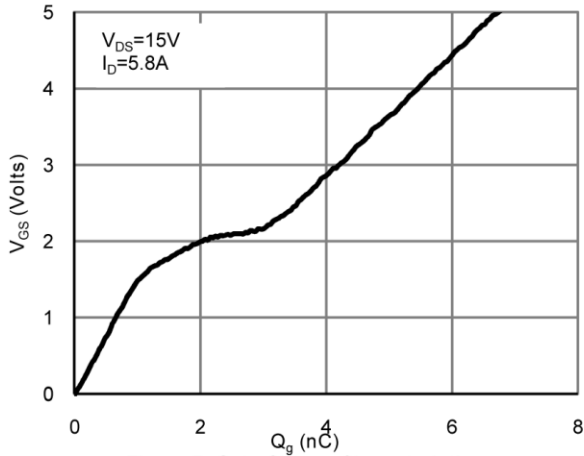
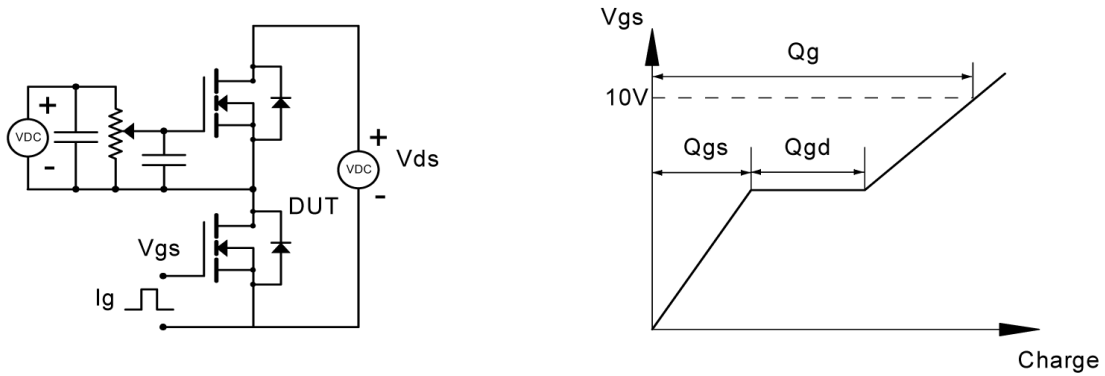


Figure 6: Body-Diode Characteristics

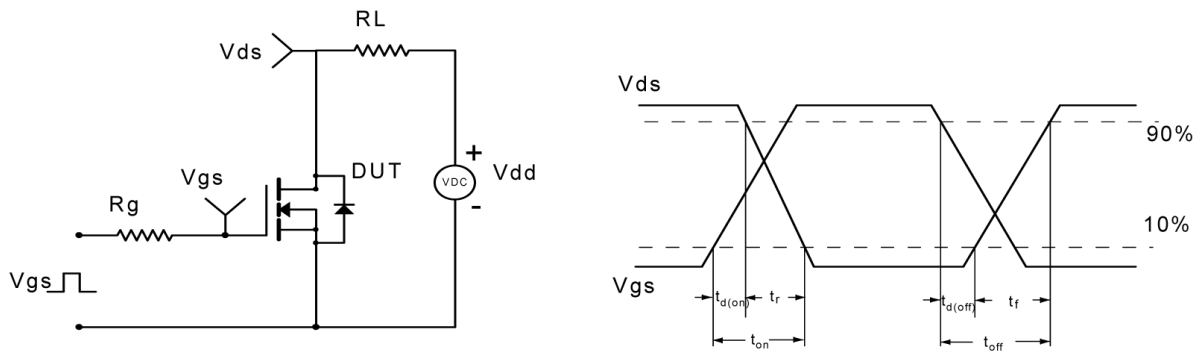




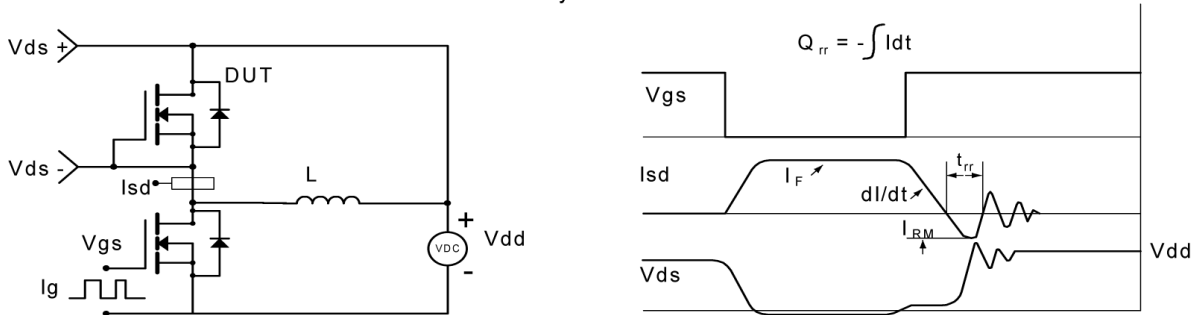
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



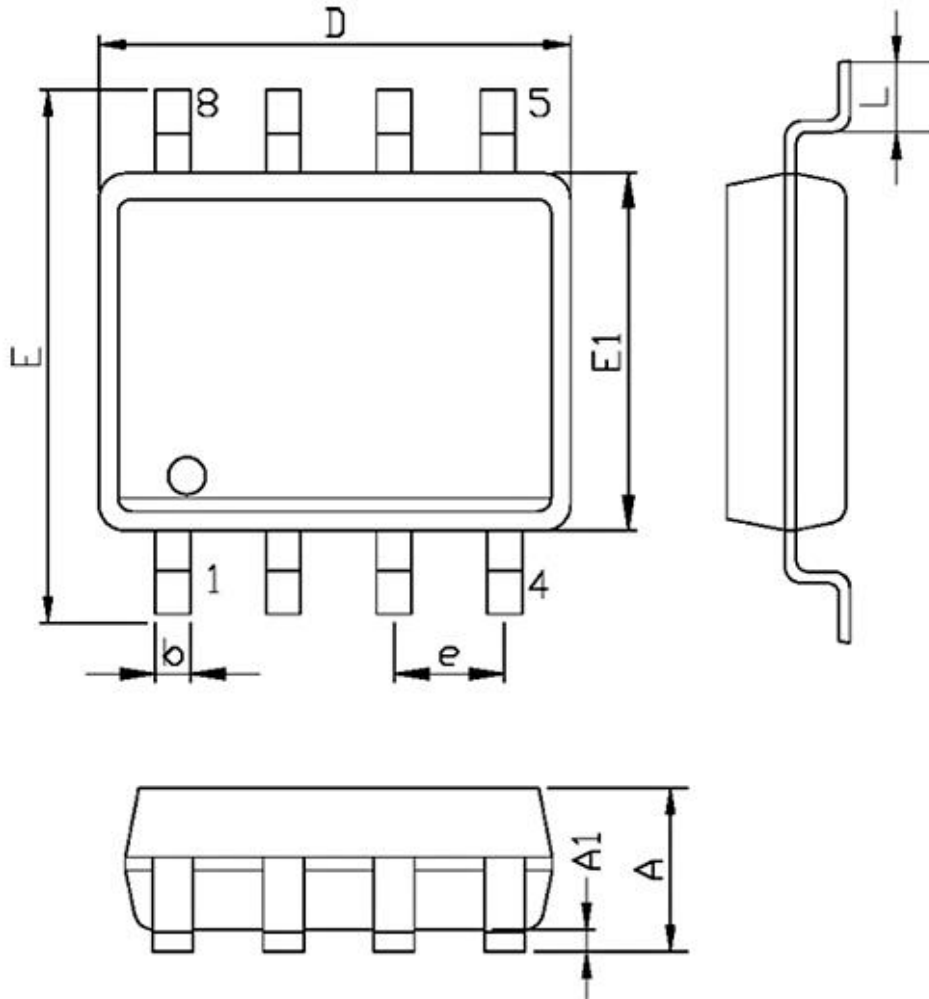
Diode Recovery Test Circuit & Waveforms





Packaging Information

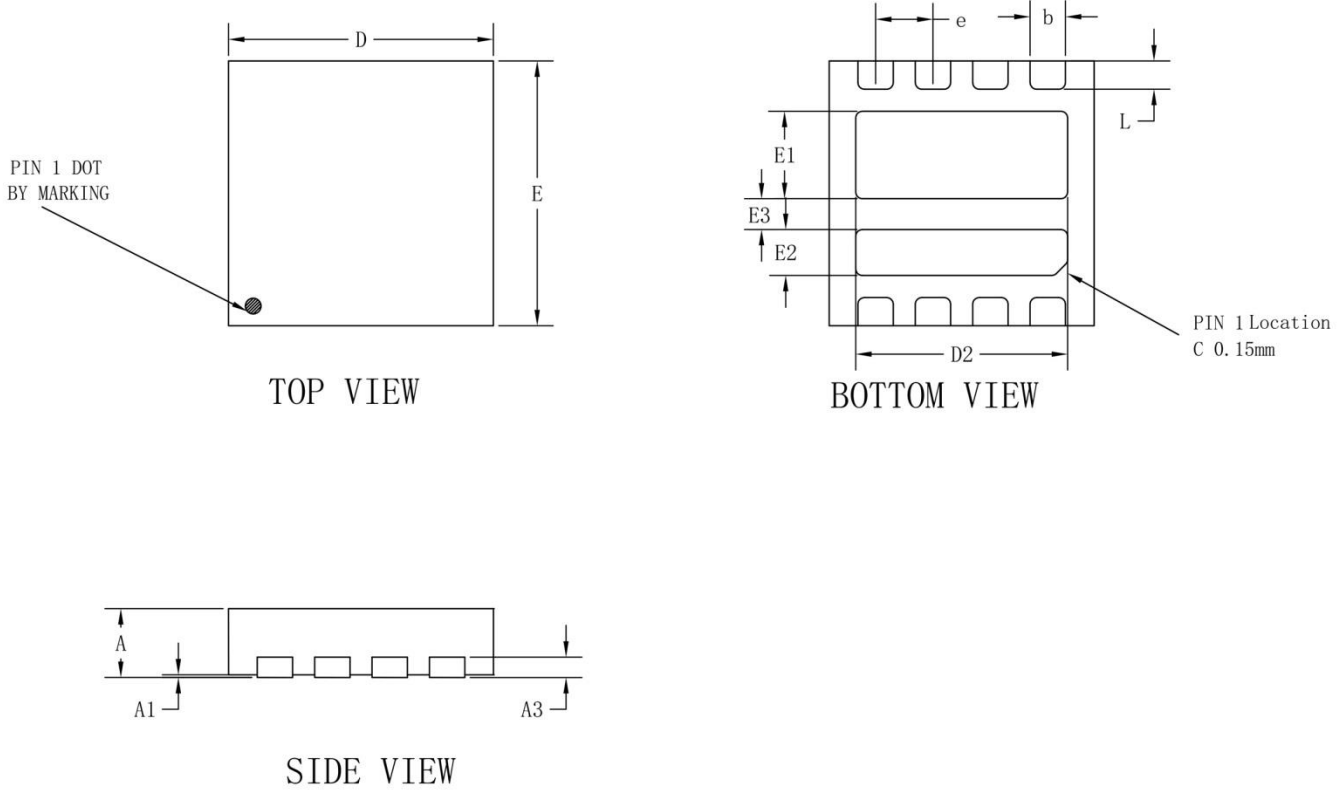
SOP8



SYMBOLS	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
D	4.90		0.193	
E	5.80	6.20	0.228	0.244
E1	3.90		0.153	
L	0.40	1.27	0.016	0.050
b	0.31	0.51	0.012	0.020
e	1.27		0.050	



DFN8 3*3



COMMON DIMENSIONS (MM)			
PKG.	W: VERY VERY THIN		
REF.	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
D	2.95	3.00	3.05
E	2.95	3.00	3.05
D2	2.30	2.40	2.50
E2	0.42	0.52	0.62
E1	0.89	0.99	1.09
E3	0.35		
b	0.35	0.40	0.45
L	0.27	0.32	0.37
e	0.65 BSC		

单击下面可查看定价，库存，交付和生命周期等信息

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