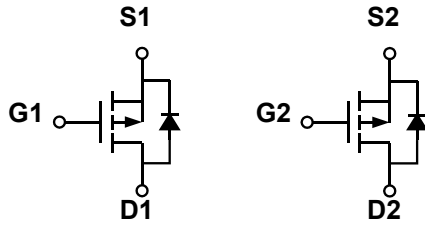
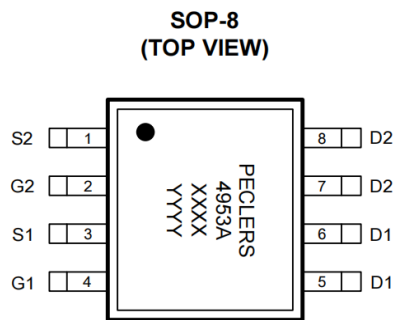


20V Dual P-Channel Enhancement Mode MOSFET

Schematic diagram



Marking and pin assignment



Note: XXXX is the date code ,
YYYY is the Quality Code.

Description

The PECN4953ASR uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a load switch or in PWM applications.

General Features

- ◆ $V_{DS} = -20V$, $I_D = -3A$
 $R_{DS(ON)}(Typ.) = 66m\Omega$ @ $V_{GS} = -2.5V$
 $R_{DS(ON)}(Typ.) = 51m\Omega$ @ $V_{GS} = -4.5V$
- ◆ High power and current handling capability
- ◆ Lead free product is acquired
- ◆ Surface mount package

Application

- ◆ PWM applications
- ◆ Load switch

100% UIS TESTED!
100% ΔV_{ds} TESTED!

Package

- ◆ SOP-8



Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN4953ASR	-55°C to +150°C	SOP-8	4000

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

parameter			limit	unit
Drain-source voltage		V_{DS}	-20	V
Gate-source voltage		V_{GS}	±12	V
Drain Current-Continuous (Silicon Limited)	$T_A = 25^\circ C$	I_D	-3	A
	$T_A = 75^\circ C$		-2	
Pulsed Drain Current (Package Limited)		I_{DM}	-12	A
Maximum power dissipation	$T_A = 25^\circ C$	P_D	1.4	W
	$T_A = 75^\circ C$		1	
Operating junction Temperature range		T_j	-55—150	°C

Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	1	μA
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.65	-1.2	V
Drain-source on-state resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-2.8A	-	51	80	mΩ
		V _{GS} =-2.5V, I _D =-2.8A	-	66	100	
Forward transconductance	g _{fs}	V _{GS} =-5V, I _D =-5A	-	5	-	S
Dynamic Characteristics						
Input capacitance	C _{ISS}	V _{DS} =-10V ,V _{GS} =0V f=1.0MHz	-	561	-	pF
Output capacitance	C _{OSS}		-	61	-	
Reverse transfer capacitance	C _{RSS}		-	52	-	
Switching Characteristics						
Turn-on delay time	t _{D(ON)}	V _{DD} =-10V I _D =-2.8A V _{GEN} =-4.5V R _L =10ohm R _{GEN} =-60ohm	-	12.5	-	ns
Rise time	t _r		-	6.6	-	
Turn-off delay time	t _{D(OFF)}		-	113	-	
Fall time	t _f		-	46.6	-	
Total gate charge	Q _g	V _{DS} =-10V,I _D =-3A V _{GS} =-4.5V	-	6.1	-	nC
Gate-source charge	Q _{gs}		-	1.7	-	
Gate-drain charge	Q _{gd}		-	1.2	-	

Thermal Characteristics

Thermal Resistance junction-to ambient	$R_{\theta JA}$	100	$^{\circ}C/W$
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Typical Performance Characteristics

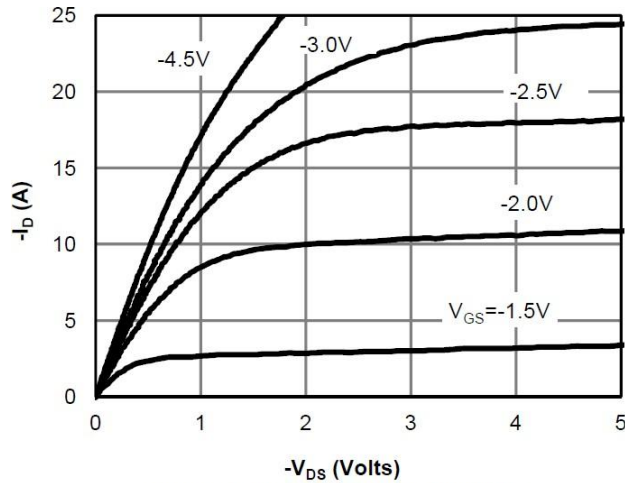


Figure 1: On-Region Characteristics

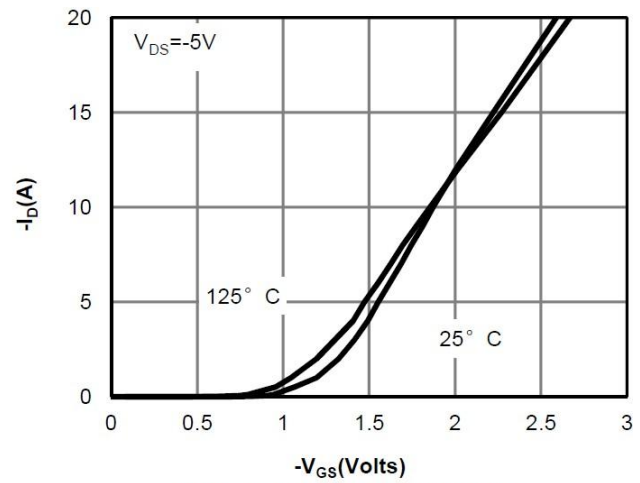


Figure 2: Transfer Characteristics

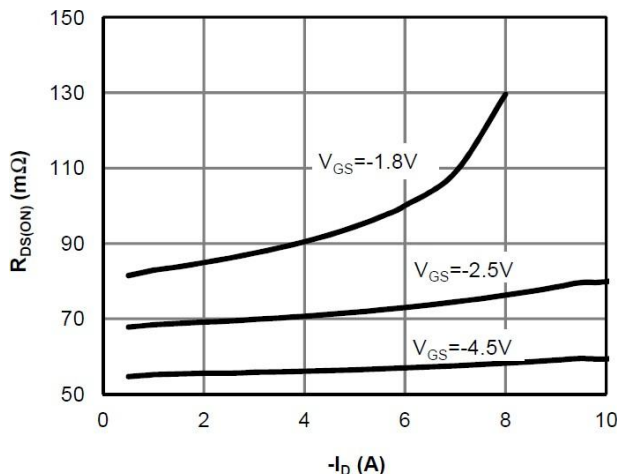


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

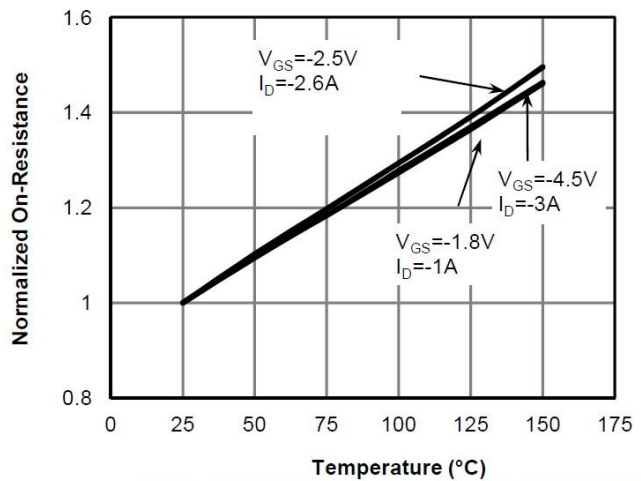


Figure 4: On-Resistance vs. Junction Temperature

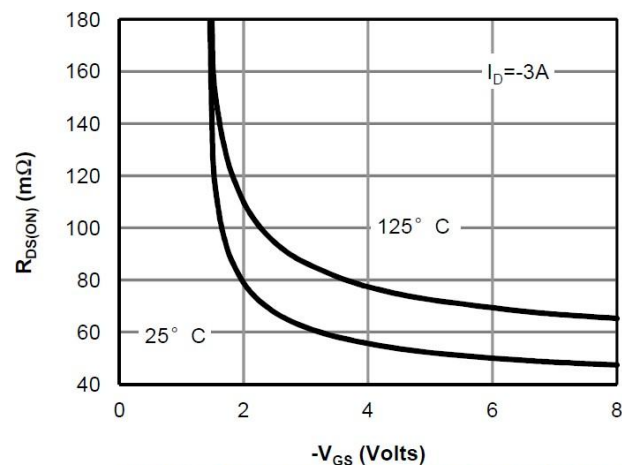


Figure 5: On-Resistance vs. Gate-Source Voltage

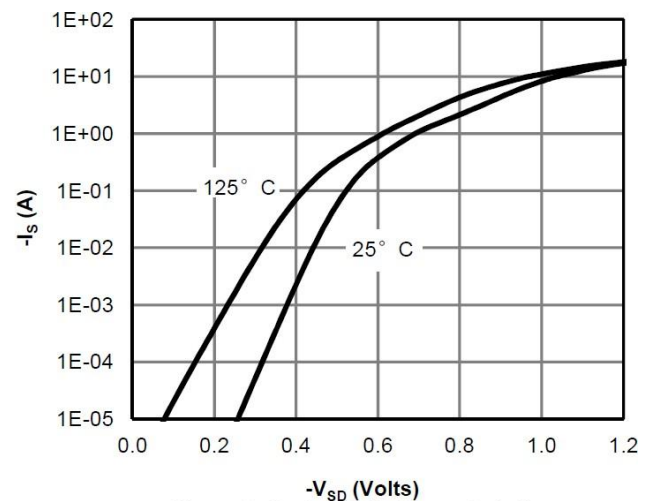


Figure 6: Body-Diode Characteristics

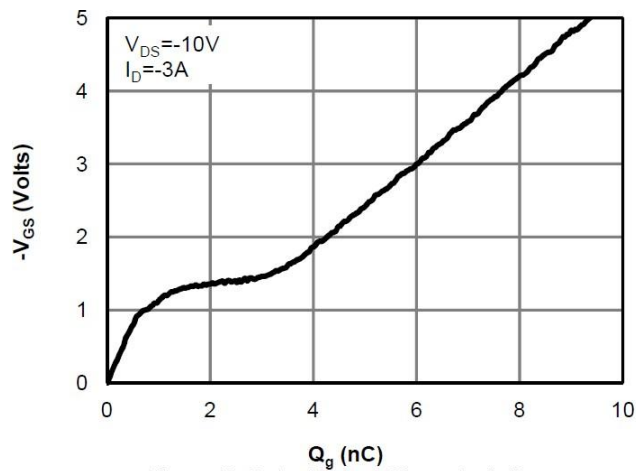


Figure 7: Gate-Charge Characteristics

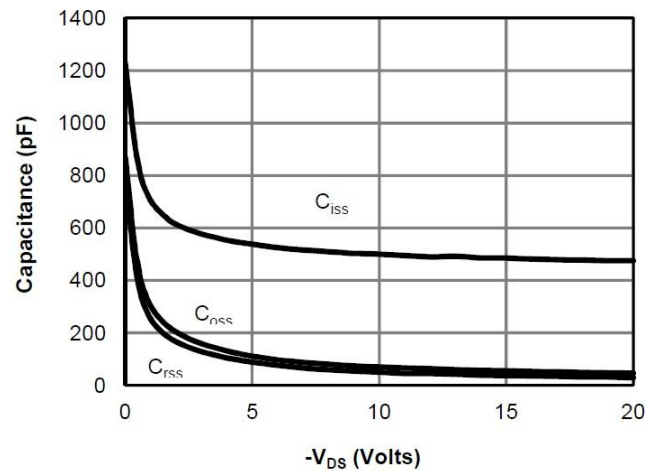


Figure 8: Capacitance Characteristics

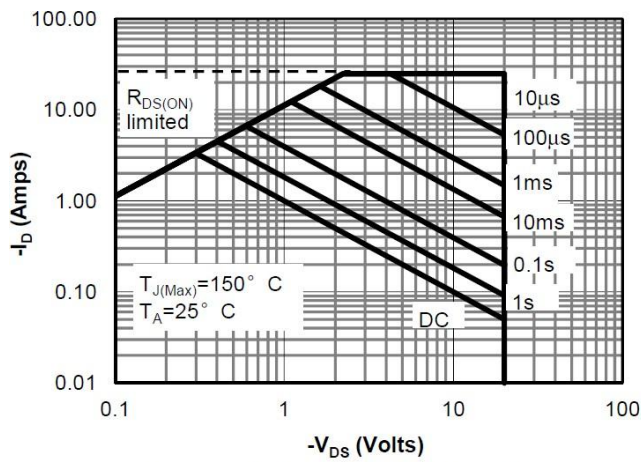


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

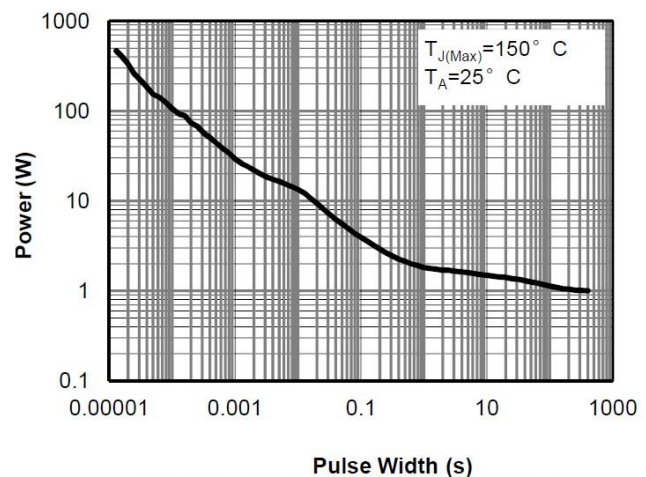


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

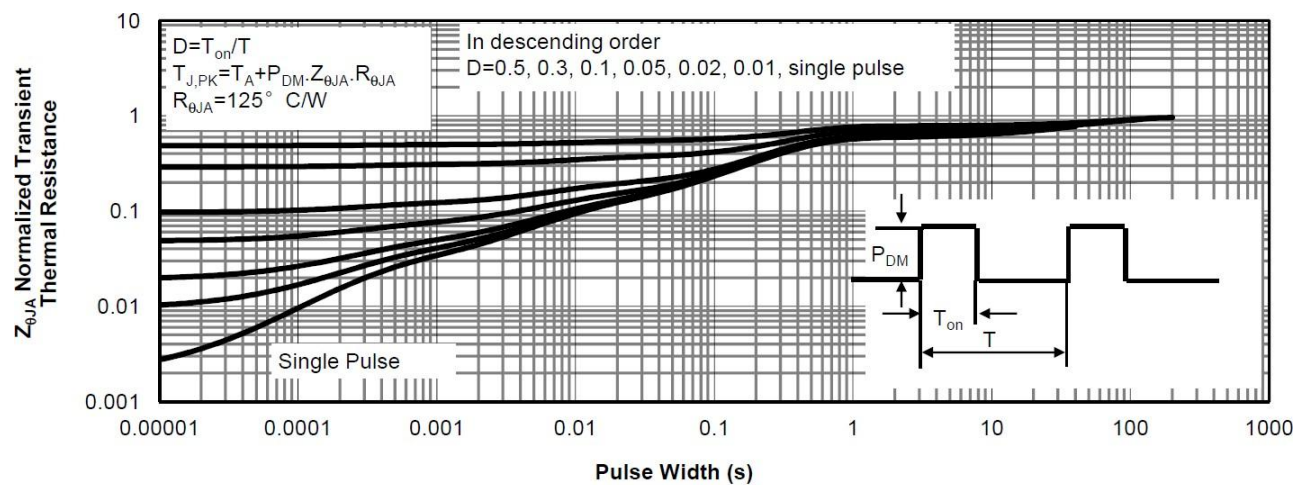
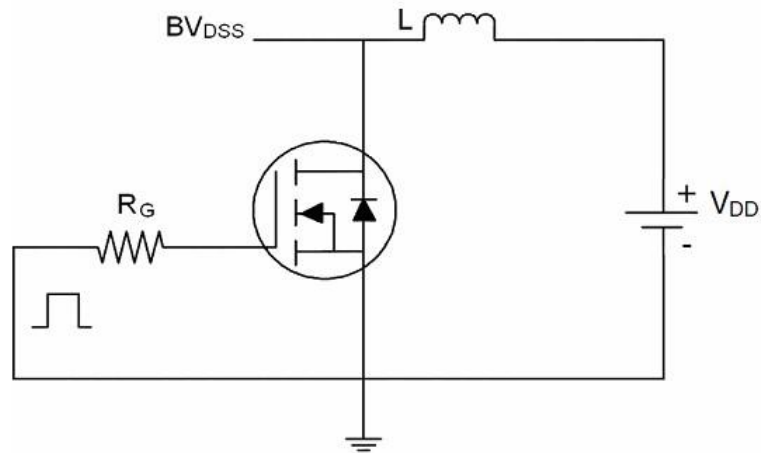


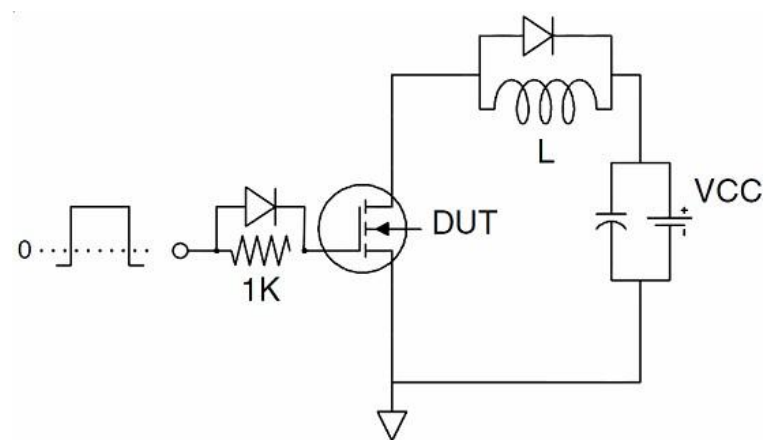
Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

Test Circuit:

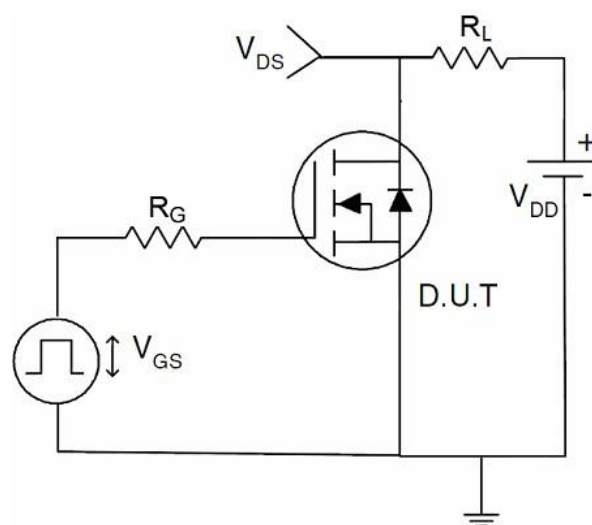
1 、EAS Test Circuit



2 、Gate Charge Test Circuit

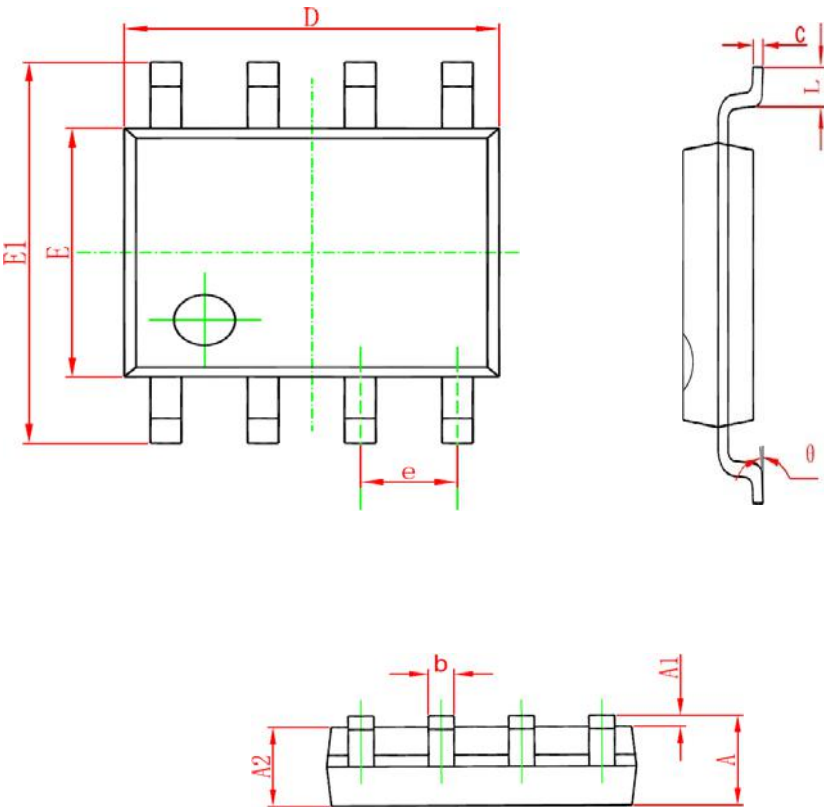


3 、Switch Time Test Circuit



Package Information

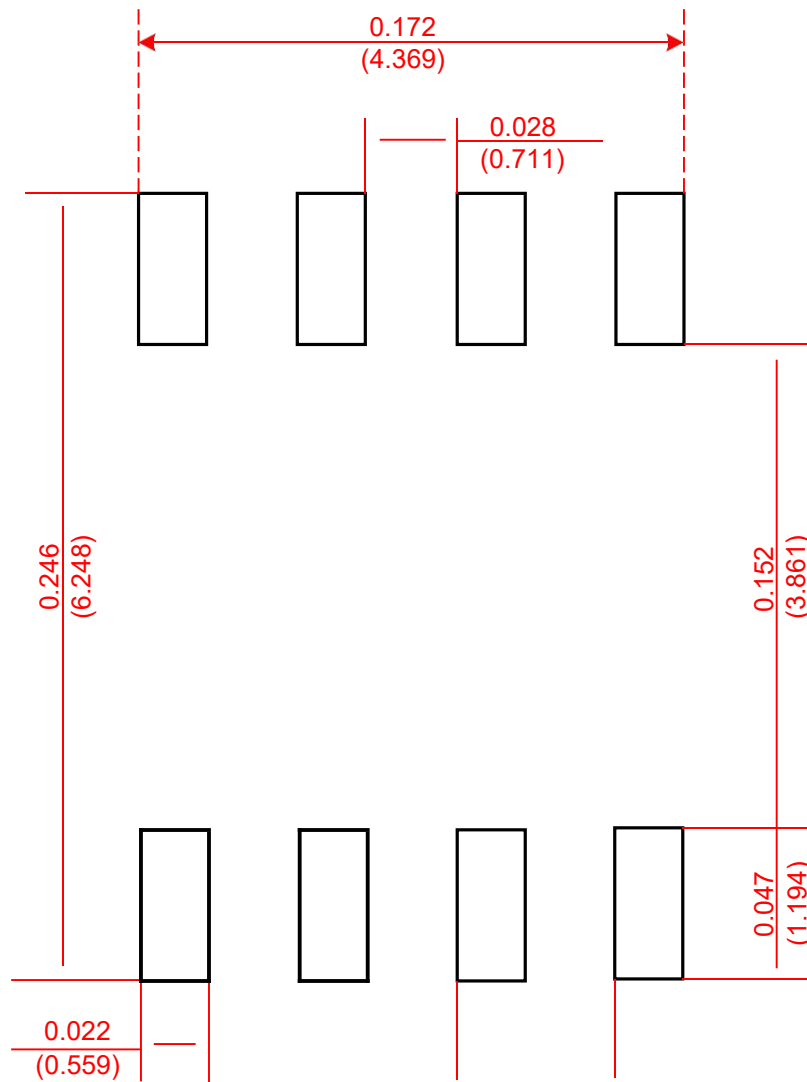
- SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Recommended Minimum Pads

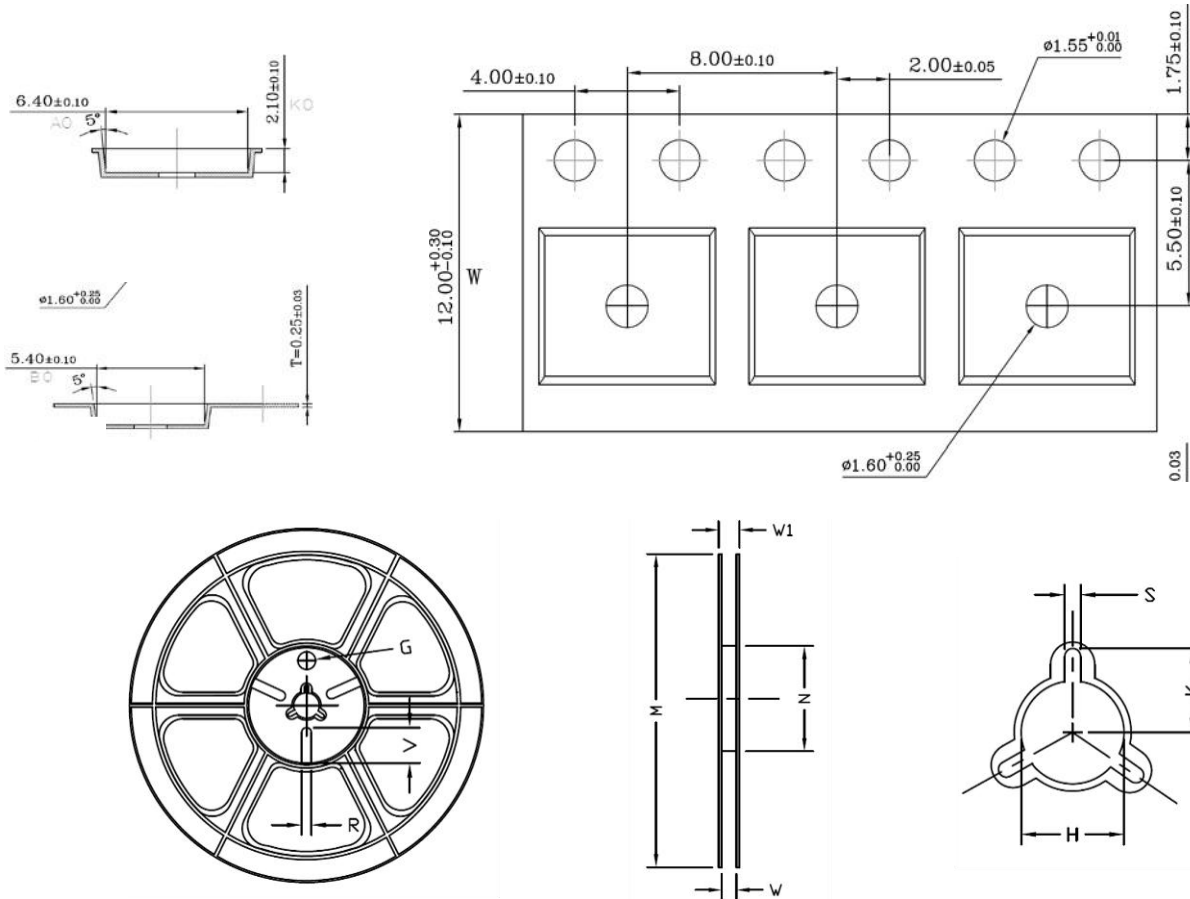
- SOP-8



Recommended Minimum Pads
Dimensions in Inches/(mm)

Tape and Reel

- SOP-8



Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
12mm	Φ330	Φ330.00 ±0.50	Φ97.00 ±0.30	13.00 ±0.30	17.40 ±1.00	Φ13.00 ±0.5	10.6	2.00 ±0.50	—	—	—

Unit Per Reel:
4000pcs

