

20V Dual N-Channel Enhancement Mode MOSFET

Description

The PECN9926BSR uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

General Features

- ◆ $V_{DS} = 20V$, $I_D = 6A$
 $R_{DS(ON)}(\text{Typ.}) = 28m\Omega$ @ $V_{GS} = 2.5V$
 $R_{DS(ON)}(\text{Typ.}) = 24m\Omega$ @ $V_{GS} = 4.5V$
- ◆ High density cell design for ultra low R_{dson}
- ◆ Fully characterized avalanche voltage and current

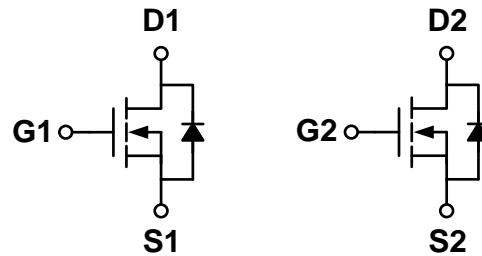
Application

- ◆ Power switching application
- ◆ Hard switched and high frequency circuits
- ◆ Uninterruptible power supply

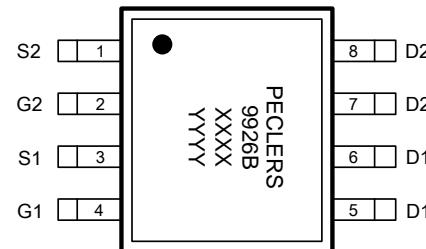
Package

- ◆ SOP-8

100% UIS TESTED!
100% ΔV_{ds} TESTED!

**Schematic diagram****Marking and pin assignment**

**SOP-8
(TOP VIEW)**



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

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN9926BSR	-55°C to +150°C	SOP-8	4000

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

parameter	symbol	limit	unit
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V_{GS}	± 12	V
Drain Current-Continuous (Silicon Limited)	I_D	6	A
		4	
Pulsed Drain Current (Package Limited)	I_{DM}	24	A
Maximum power dissipation	P_D	1.25	W
		0.8	
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	-0.5	0.7	1.2	V
Drain-source on-state resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =6A	-	24	28	mΩ
		V _{GS} =2.5V, I _D =5A	-	28	35	
Forward transconductance	g _f	V _{GS} =5V, I _D =6A	-	10	-	S
Dynamic Characteristics						
Input capacitance	C _{ISS}	V _{DS} =10V, V _{GS} =0V f=1.0MHz	-	900	-	pF
Output capacitance	C _{OSS}		-	220	-	
Reverse transfer capacitance	C _{RSS}		-	100	-	
Switching Characteristics						
Turn-on delay time	t _{D(ON)}	V _{DD} =10V I _D =6A V _{GEN} =4.5V R _{GEN} =6ohm	-	10	-	ns
Rise time	tr		-	11	-	
Turn-off delay time	t _{D(OFF)}		-	35	-	
Fall time	tf		-	30	-	
Total gate charge	Q _g	V _{DS} =10V, I _D =6A V _{GS} =4.5V	-	12	-	nC
Gate-source charge	Q _{gs}		-	2.3	-	
Gate-drain charge	Q _{gd}		-	1	-	

Thermal Characteristics

Thermal Resistance junction-to ambient	R _{θJA}	100	°C/W
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Typical Performance Characteristics

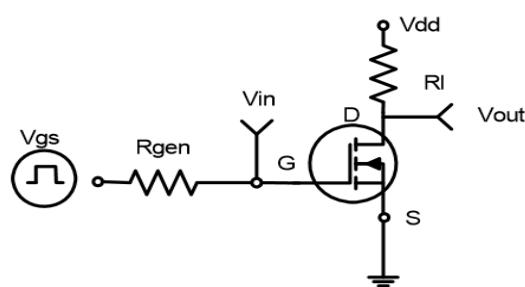


Figure 1:Switching Test Circuit

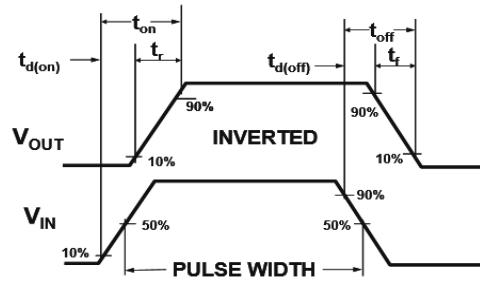
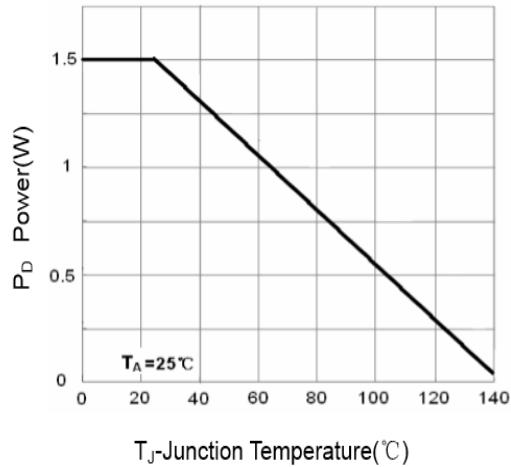
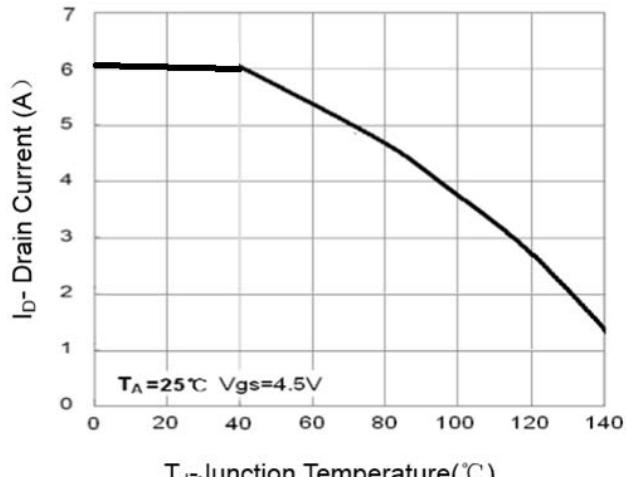


Figure 2:Switching Waveforms



T_J-Junction Temperature(°C)

Figure 3 Power Dissipation



T_J-Junction Temperature(°C)

Figure 4 Drain Current

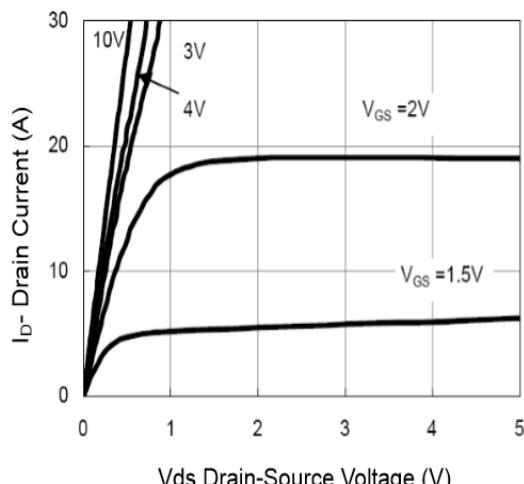


Figure 5 Output Characteristics

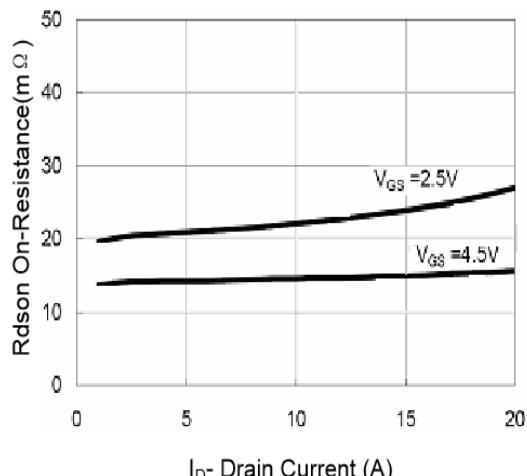


Figure 6 Drain-Source On-Resistance

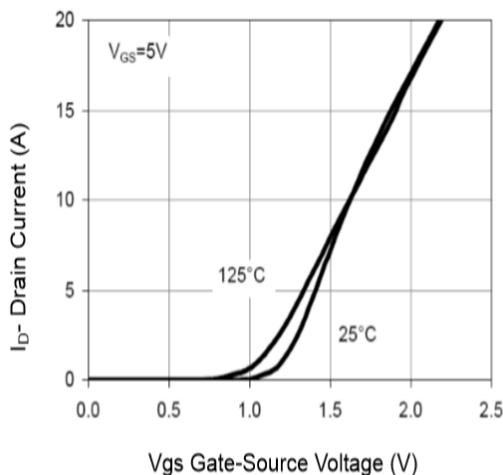


Figure 7 Transfer Characteristics

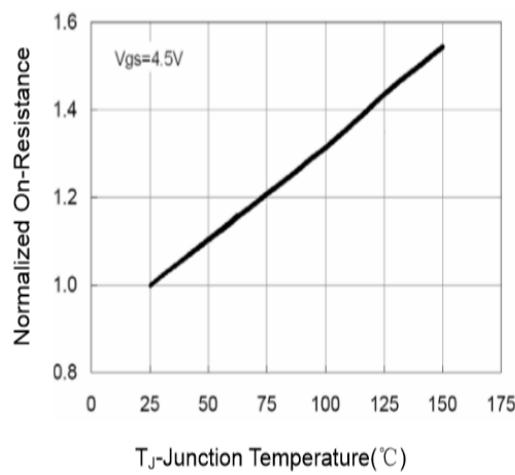


Figure 8 Drain-Source On-Resistance

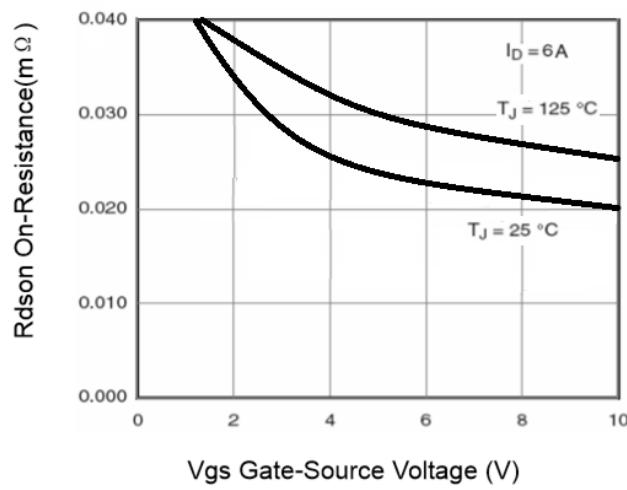


Figure 9 R_{DSON} vs V_{GS}

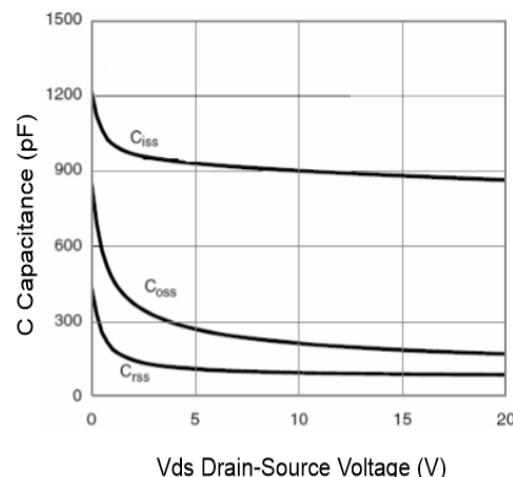


Figure 10 Capacitance vs V_{DS}

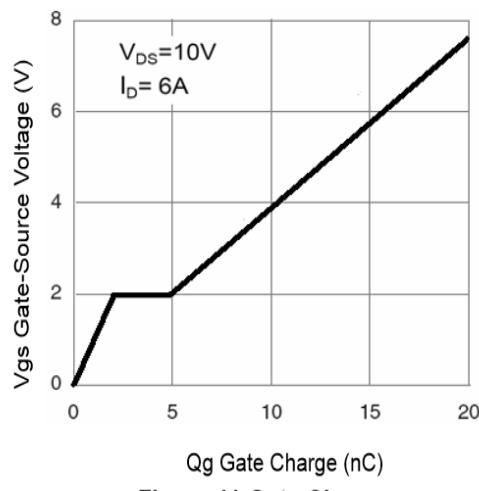


Figure 11 Gate Charge

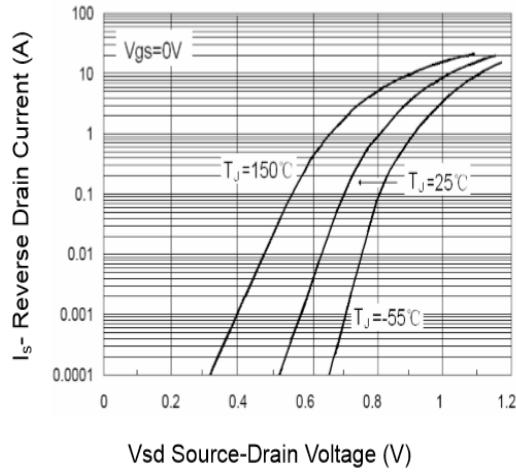


Figure 12 Source-Drain Diode Forward

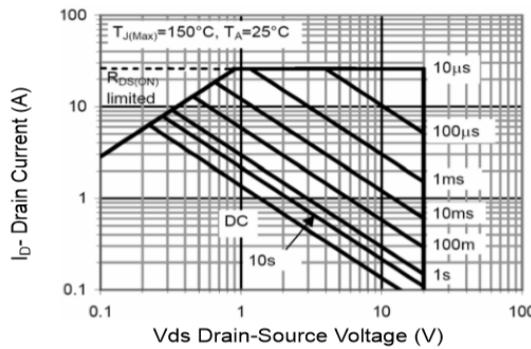


Figure 13 Safe Operation Area

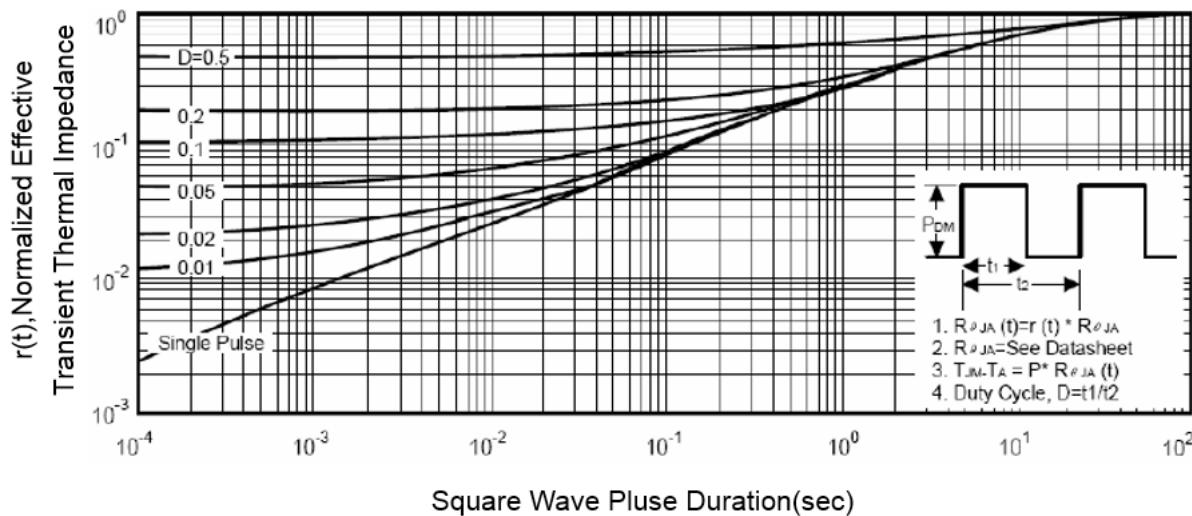
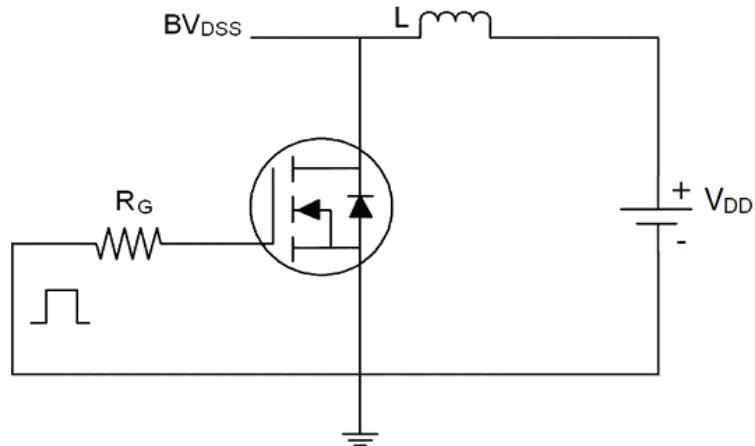
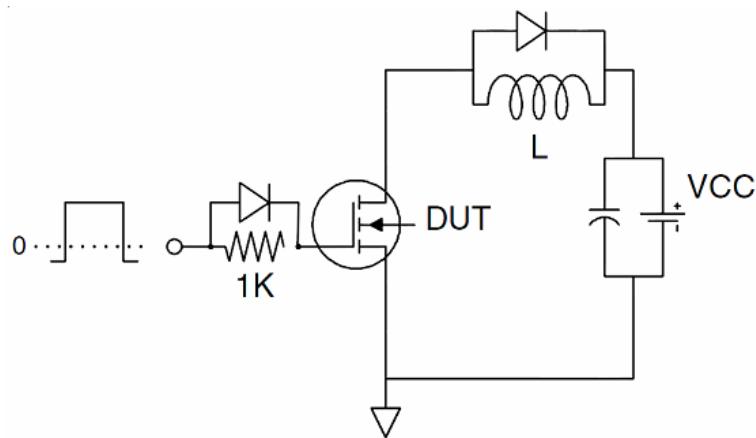


Figure 14 Normalized Maximum Transient Thermal Impedance

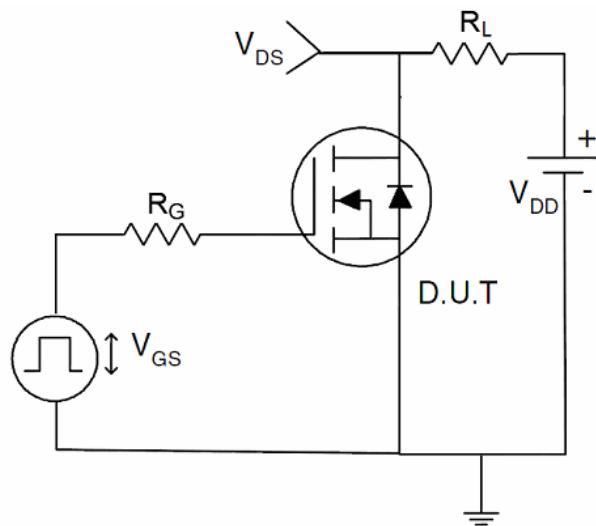
(1)、EAS Test Circuit



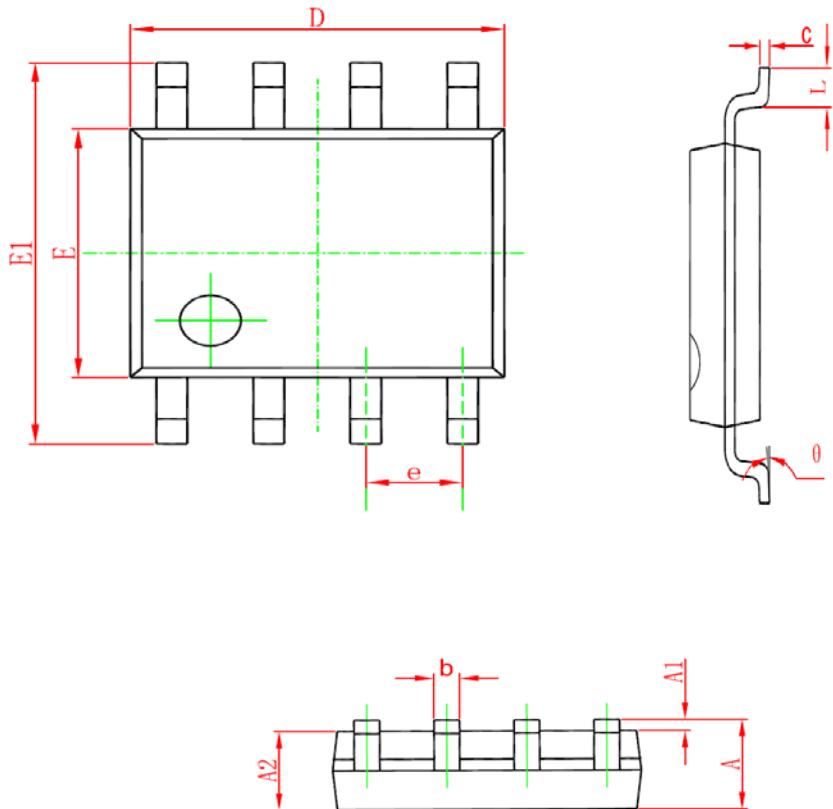
(2)、Gate Charge Test Circuit



(3)、Switch Time Test Circuit

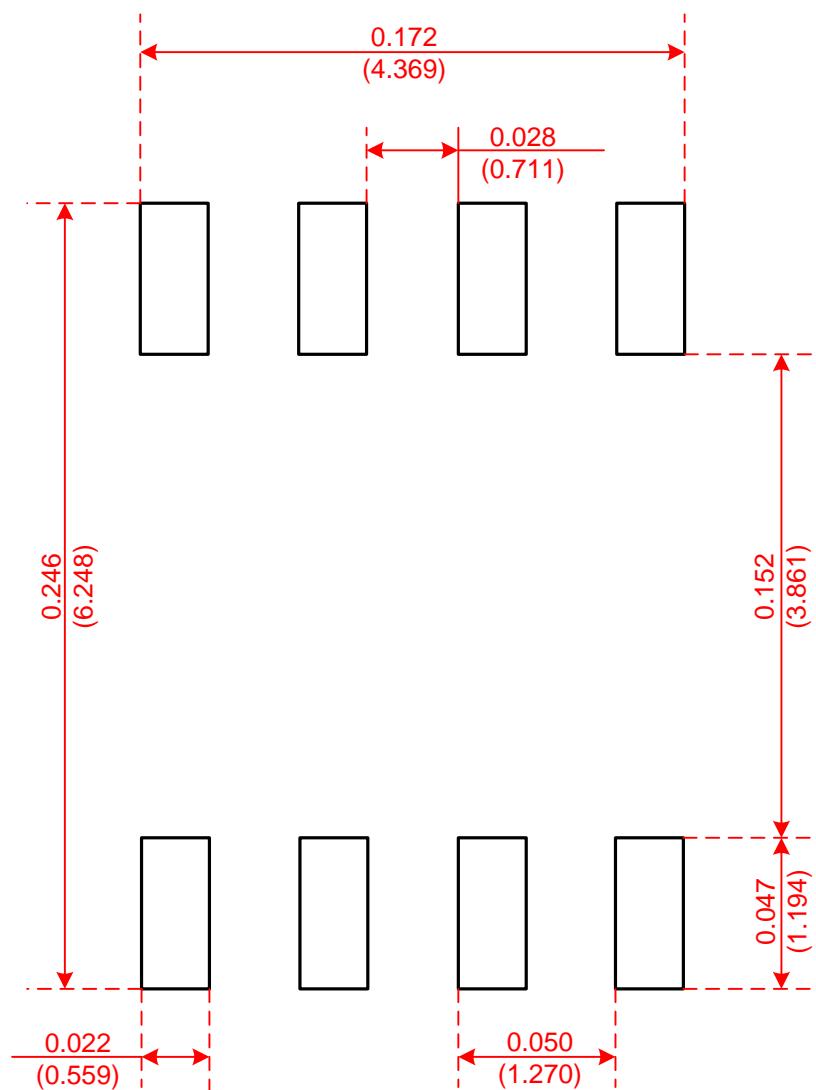


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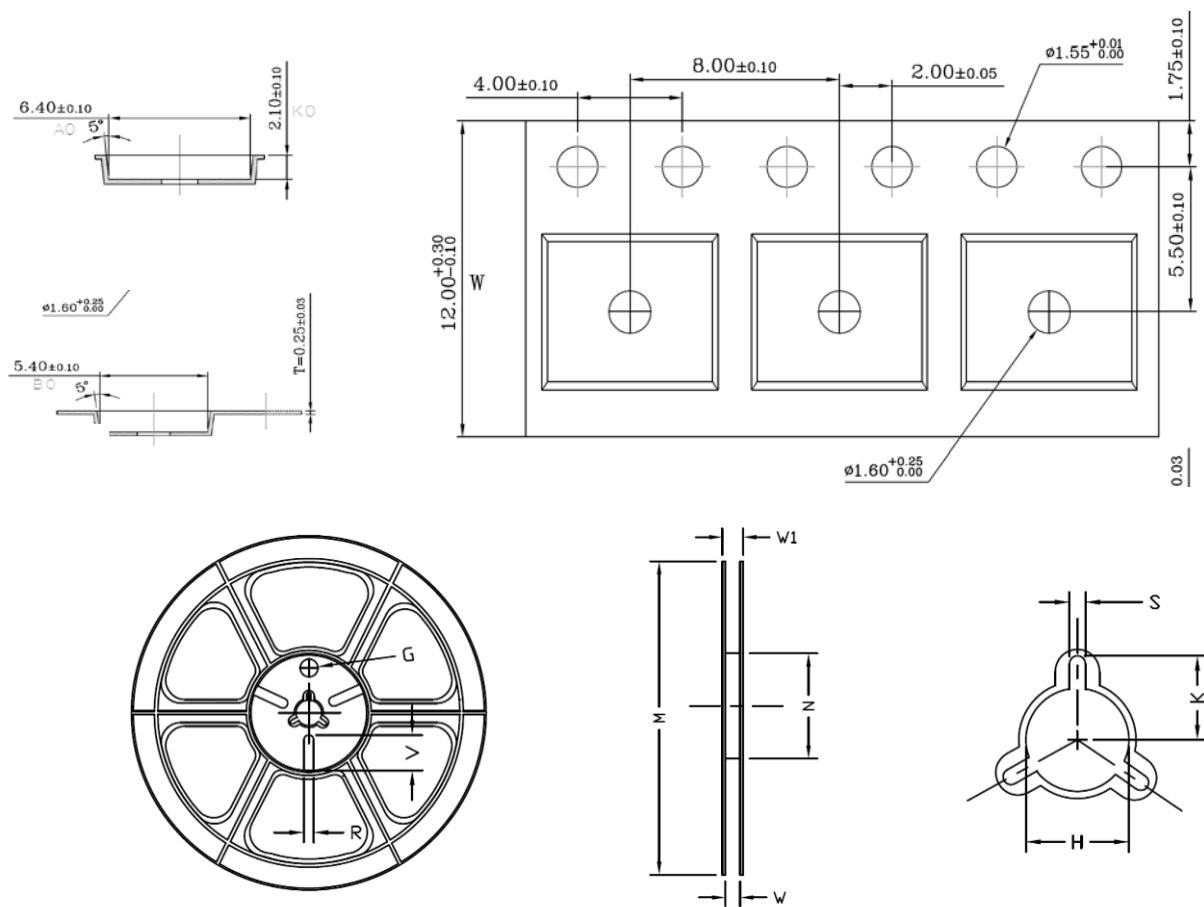


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050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

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**Recommended Minimum Pads
Dimensions in Inches/(mm)**



Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
12mm	$\phi 330$	$\phi 330.00 \pm 0.50$	$\phi 97.00 \pm 0.30$	13.00 ± 0.30	17.40 ± 1.00	$\phi 13.00 \pm 0.5$	10.6	2.00 ± 0.50	—	—	—

