
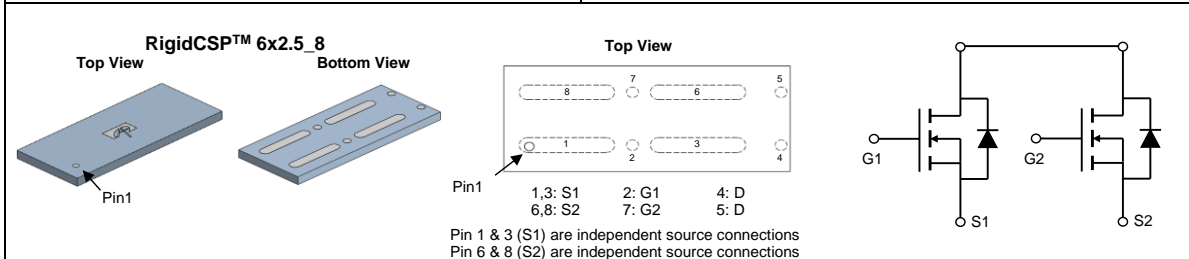


<p><b>General Description</b></p> <ul style="list-style-type: none"> <li>• Trench Power MOSFET technology</li> <li>• Low <math>R_{SS(ON)}</math></li> <li>• Common drain configuration for design simplicity</li> <li>• RoHS and Halogen-Free Compliant</li> </ul> <p><b>Applications</b></p> <ul style="list-style-type: none"> <li>• Battery protection switch</li> <li>• Mobile device battery charging and discharging</li> </ul>	<p><b>Product Summary</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;"><math>V_{SS}</math></td> <td style="text-align: right;">30V</td> </tr> <tr> <td><math>R_{SS(ON)}</math> (at <math>V_{GS}=10V</math>)</td> <td style="text-align: right;">&lt; 2.6m<math>\Omega</math></td> </tr> <tr> <td><math>R_{SS(ON)}</math> (at <math>V_{GS}=8V</math>)</td> <td style="text-align: right;">&lt; 2.9m<math>\Omega</math></td> </tr> <tr> <td><math>R_{SS(ON)}</math> (at <math>V_{GS}=4.5V</math>)</td> <td style="text-align: right;">&lt; 4.2m<math>\Omega</math></td> </tr> </table> <p><b>Typical ESD Level</b> <span style="float: right;"><b>HBM Class 2</b></span></p> <div style="text-align: right;">  </div>	$V_{SS}$	30V	$R_{SS(ON)}$ (at $V_{GS}=10V$ )	< 2.6m $\Omega$	$R_{SS(ON)}$ (at $V_{GS}=8V$ )	< 2.9m $\Omega$	$R_{SS(ON)}$ (at $V_{GS}=4.5V$ )	< 4.2m $\Omega$
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Orderable Part Number	Package Type	Form	Minimum Order Quantity
AOCR32326	RigidCSP™ 6x2.5_8	Tape & Reel	3000

**Absolute Maximum Ratings**  $T_A=25^\circ\text{C}$  unless otherwise noted

Parameter	Symbol	Rating	Units
Source-Source Voltage	$V_{SS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Source Current (DC) <sup>Note1</sup>	$I_S$	28	A
Source Current (Pulse) <sup>Note2</sup>	$I_{SM}$	130	
Power Dissipation <sup>Note1</sup>	$P_D$	2.75	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

**Thermal Characteristics**

Parameter	Symbol	Typical	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$	35	$^\circ\text{C/W}$
Maximum Junction-to-Ambient		45	$^\circ\text{C/W}$

**Note 1.**  $I_S$  rated value is based on bare silicon. Mounted on 70mmx70mm FR-4 board.

**Note 2.** PW < 10  $\mu\text{s}$  pulses, duty cycle 1% max.

**Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>STATIC PARAMETERS</b>						
BV <sub>SSS</sub>	Source-Source Breakdown Voltage	I <sub>S</sub> =250μA, V <sub>GS</sub> =0V Test Circuit 6	30			V
I <sub>SSS</sub>	Zero Gate Voltage Source Current	V <sub>SS</sub> =30V, V <sub>GS</sub> =0V Test Circuit 1 T <sub>J</sub> =55°C			1 5	μA
I <sub>GSS</sub>	Gate leakage current	V <sub>SS</sub> =0V, V <sub>GS</sub> =±20V Test Circuit 2			±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>SS</sub> =V <sub>GS</sub> , I <sub>S</sub> =250μA Test Circuit 3	1.3	1.8	2.3	V
R <sub>SS(ON)</sub>	Static Source to Source On-Resistance	V <sub>GS</sub> =10V, I <sub>S</sub> =10A Test Circuit 4	1.4	2.1	2.6	mΩ
		T <sub>J</sub> =125°C		3.1	3.8	
		V <sub>GS</sub> =8V, I <sub>S</sub> =10A Test Circuit 4	1.5	2.2	2.9	mΩ
		V <sub>GS</sub> =4.5V, I <sub>S</sub> =10A Test Circuit 4	2	2.9	4.2	mΩ
g <sub>FS</sub>	Forward Transconductance	V <sub>SS</sub> =5V, I <sub>S</sub> =10A Test Circuit 3		80		S
V <sub>FSS</sub>	Forward Source to Source Voltage	I <sub>S</sub> =1A, V <sub>GS</sub> =0V Test Circuit 5		0.72	1	V
<b>DYNAMIC PARAMETERS</b>						
R <sub>g</sub>	Gate resistance	f=1MHz		1.0		Ω
<b>SWITCHING PARAMETERS</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>G1S1</sub> =10V, V <sub>SS</sub> =15V, I <sub>S</sub> =10A		142		nC
t <sub>D(on)</sub>	Turn-On DelayTime	V <sub>G1S1</sub> =10V, V <sub>SS</sub> =15V, R <sub>L</sub> =1.5Ω, R <sub>GEN</sub> =3Ω Test Circuit8		20		ns
t <sub>r</sub>	Turn-On Rise Time			80		ns
t <sub>D(off)</sub>	Turn-Off DelayTime			85		ns
t <sub>f</sub>	Turn-Off Fall Time			48		ns

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TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

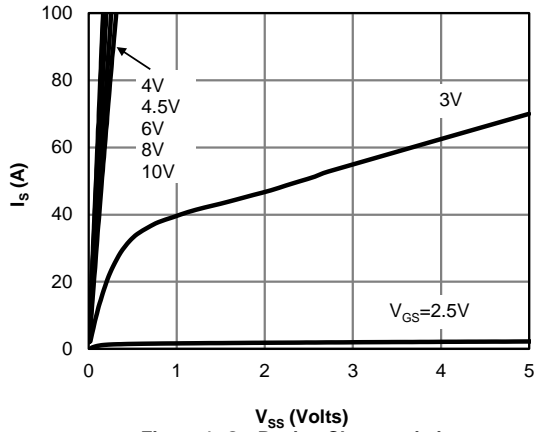


Figure 1: On-Region Characteristics

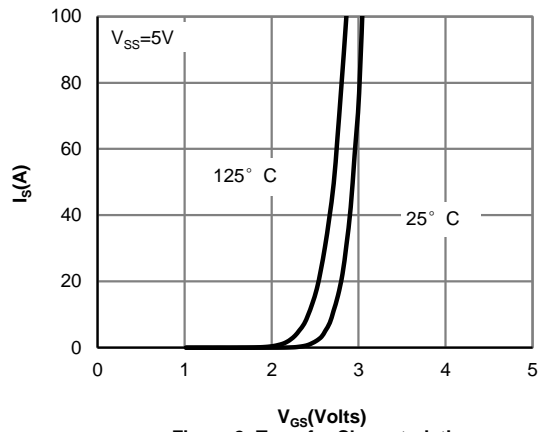


Figure 2: Transfer Characteristics

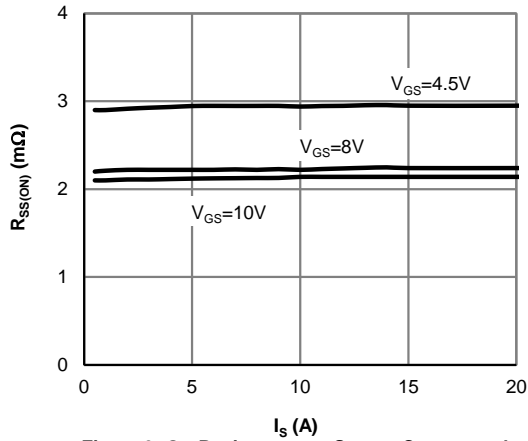


Figure 3: On-Resistance vs. Source Current and Gate Voltage

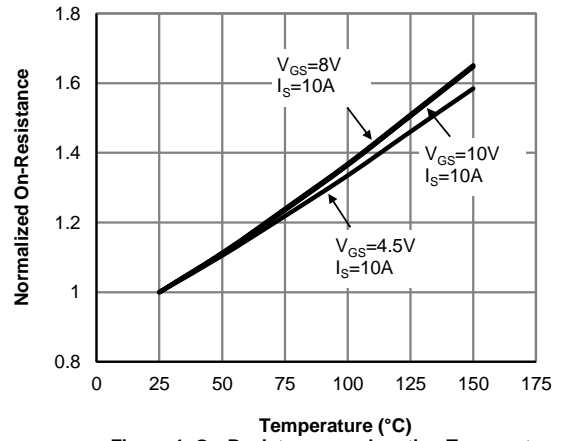


Figure 4: On-Resistance vs. Junction Temperature

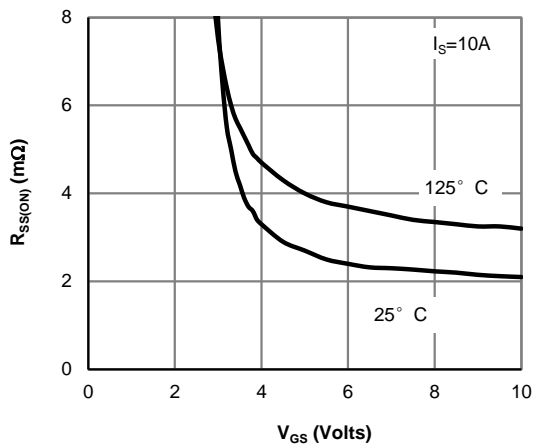


Figure 5: On-Resistance vs. Gate-Source Voltage

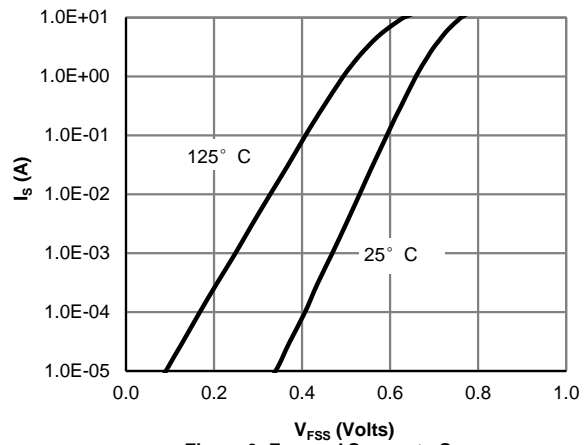


Figure 6: Forward Source to Source Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

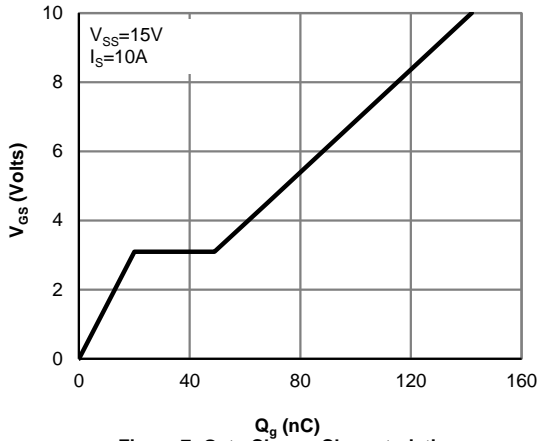


Figure 7: Gate-Charge Characteristics

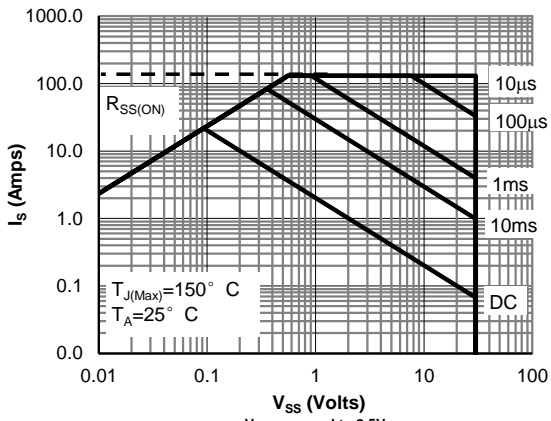


Figure 8: Maximum Forward Biased Safe Operating Area (Note1)

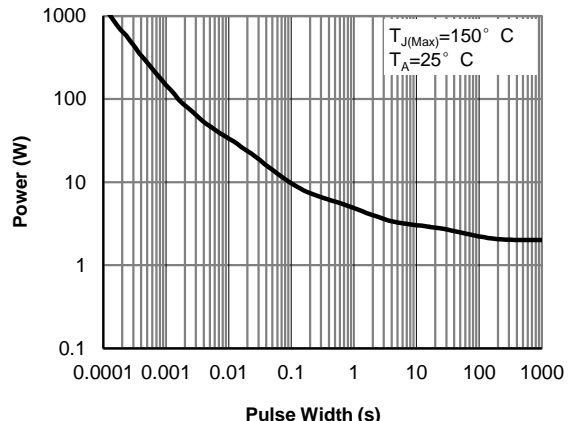


Figure 9: Single Pulse Power Rating Junction-to-Ambient (Note1)

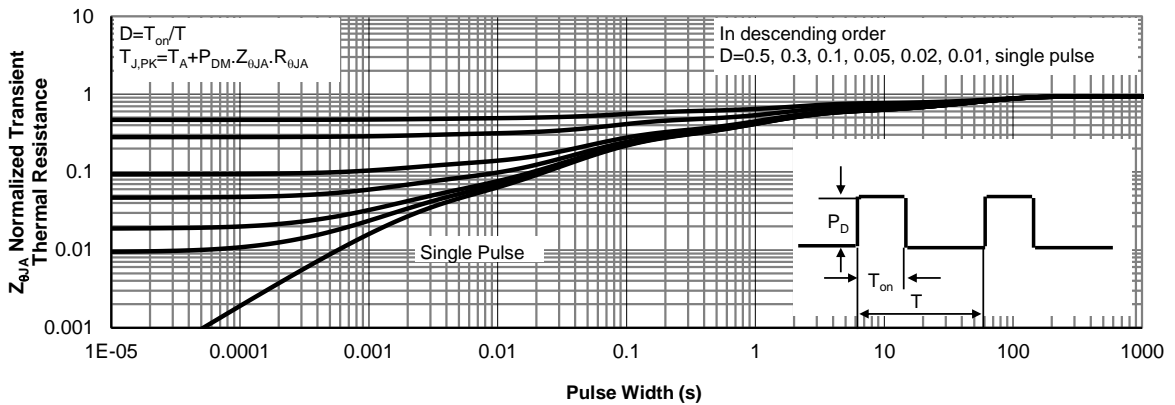
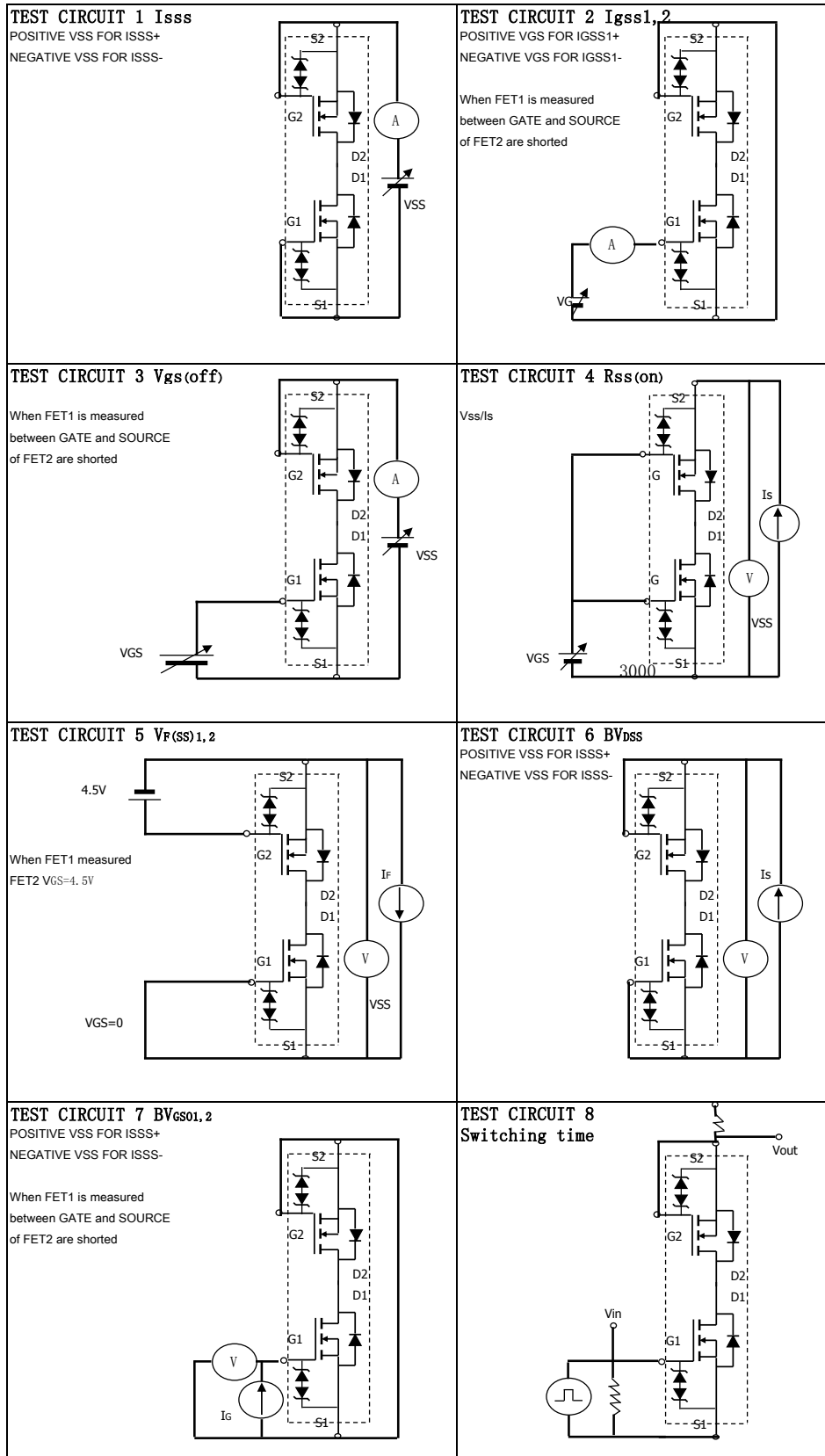
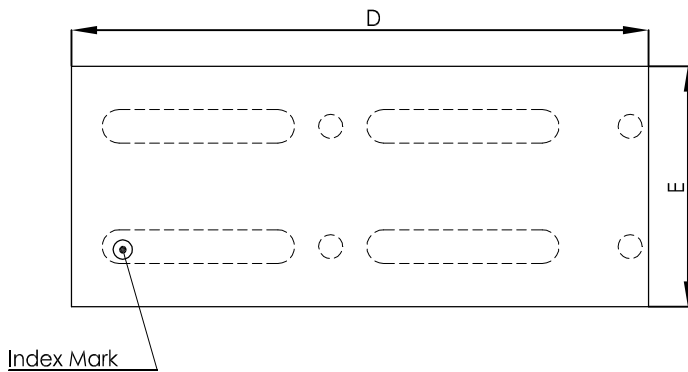
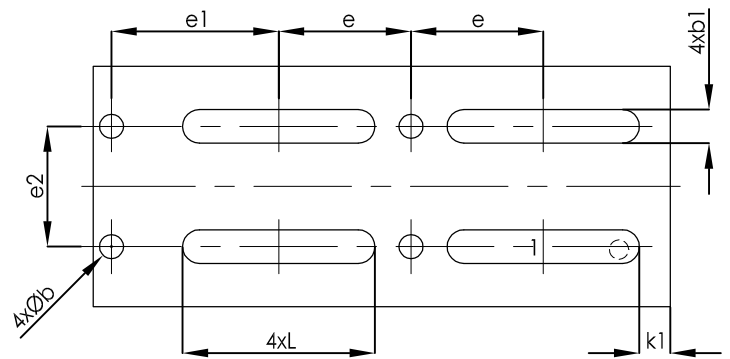
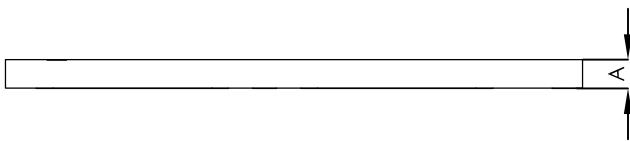
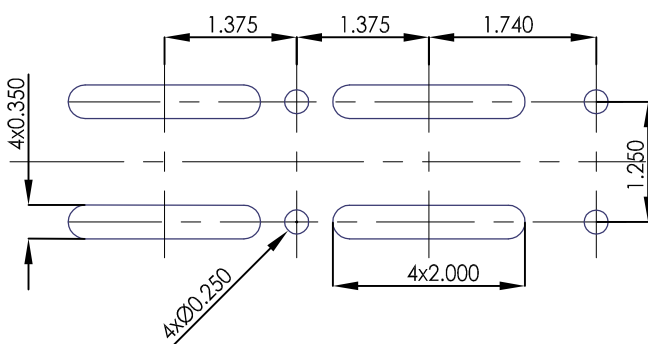


Figure 10: Normalized Maximum Transient Thermal Impedance (Note1)



# RigidCSP6x2.5\_8 PACKAGE OUTLINE


**TOP VIEW**

**BOTTOM VIEW**

**SIDE VIEW**

**RECOMMENDED LAND PATTERN**

SYMBOLS	DIM. IN MM			DIM. IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.270	0.300	0.330	---	0.012	0.013
b	0.220	0.250	0.280	0.009	0.010	0.011
b1	0.320	0.350	0.380	0.013	0.014	0.015
D	5.970	6.000	6.030	0.235	0.236	0.237
E	2.470	2.500	2.530	0.097	0.098	0.100
e	1.375BSC.			0.054BSC.		
e1	1.740BSC.			0.069BSC.		
e2	1.250BSC.			0.049BSC.		
K1	---	0.320	---	---	0.013	---
L	1.970	2.000	2.030	0.078	0.079	0.080

**NOTE:**

1. CONTROLLED DIMENSIONS ARE IN MILLIMETERS.
2. TOP VIEW IS THE VIEW OF TOP SURFACE OF THE PART HAVING INDEX AND PART NUMBER MARKING.