

# Product Specification

XBLW AO3404

N-Channel Enhancement Mode MOSFET

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## Description

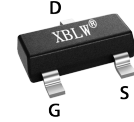
The AO3404 uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

## General Features

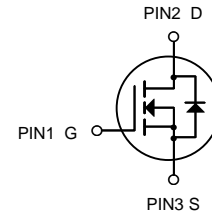
- VDS = 30V ID =5A
- RDS(ON) < 28mΩ@ VGS=10V

## Application

- Battery protection
- Load switch
- Uninterruptible power supply



SOT-23-3L



N-Channel MOSFET

## Package Marking and Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW AO3404	SOT-23-3L	X4HV	Tape	3000Pcs/Reel

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

symbol	parameter	limit	unit
V <sub>DS</sub>	Drain-source voltage	30	V
V <sub>GS</sub>	Gate-source voltage	±20	V
I <sub>D</sub>	Drain current-continuous <sup>a</sup> @Tj=125°C -pulse <sup>d</sup>	5	A
I <sub>DM</sub>		20	A
I <sub>S</sub>	Drain-source Diode forward current	5	A
P <sub>D</sub>	Maximum power dissipation	1.4	W
T <sub>j</sub>	Operating junction Temperature range	-55—150	°C
R <sub>th JA</sub>	Thermal Resistance junction-to ambient	100	°C/W

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-source breakdown voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	-	-	V
Zero gate voltage drain current	IDSS	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	1	μA
Gate-body leakage	IGSS	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V	-	-	±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.8	1.4	2.2	V
Drain-source on-state resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5A	-	24	28	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =4A	-	26	32	
Forward transconductance	g <sub>fs</sub>	V <sub>GS</sub> =5V, I <sub>D</sub> =5A	-	33	-	S
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V f=1.0MHz	-	255	-	pF
Output capacitance	COSS		-	45	-	
Reverse transfer capacitance	CRSS		-	35	-	
Turn-on delay time	t <sub>D(ON)</sub>	V <sub>DS</sub> =15V V <sub>GS</sub> =10V R <sub>L</sub> =2.6 ohm R <sub>GEN</sub> =3ohm	-	4.5	-	ns
Rise time	t <sub>r</sub>		-	2.5	-	
Turn-off delay time	t <sub>D(OFF)</sub>		-	14.5	-	
Fall time	t <sub>f</sub>		-	3.5	-	
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =5.8A V <sub>GS</sub> =10V	-	5.2	-	nC
Gate-source charge	Q <sub>gs</sub>		-	0.85	-	
Gate-drain charge	Q <sub>gd</sub>		-	1.3	-	
Diode forward voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A	-	0.76	1.16	V

**Notes:**

- 1、 surface mounted on FR4 board, t≤10sec
- 2、 pulse test: pulse width≤300μs, duty≤2%
- 3、 guaranteed by design, not subject to production testing

### Typical Performance Characteristics

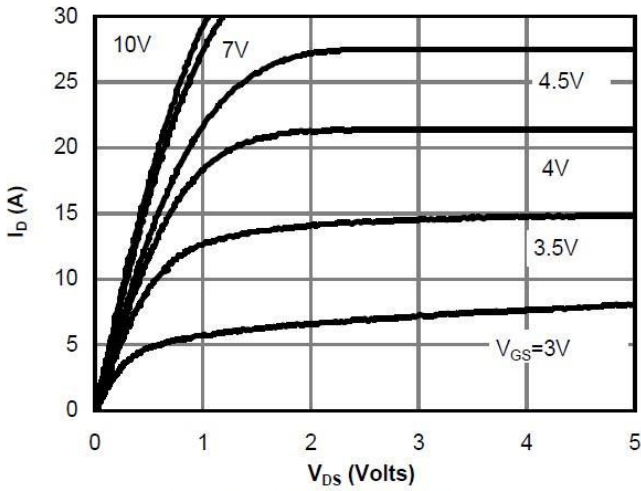


Fig 1: On-Region Characteristics

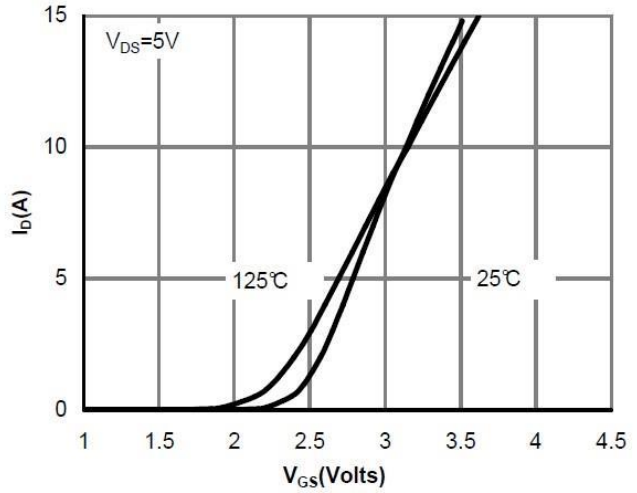


Figure 2: Transfer Characteristics

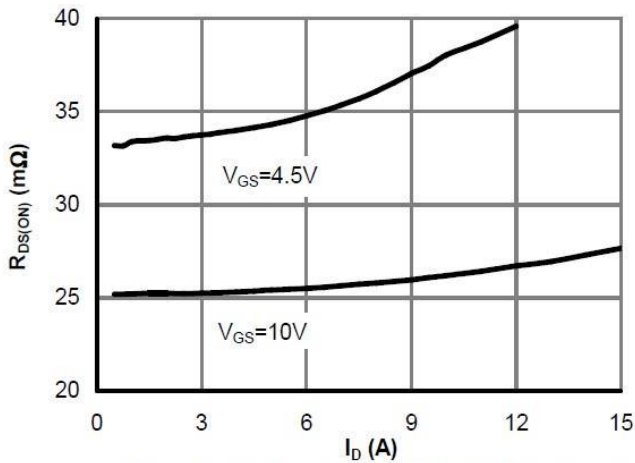


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

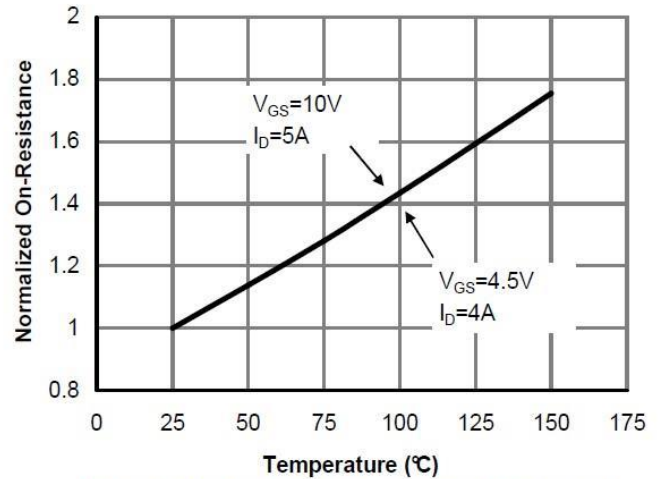


Figure 4: On-Resistance vs. Junction Temperature

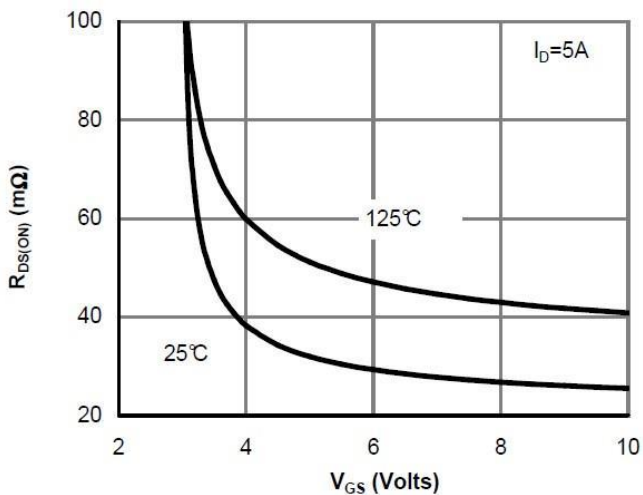


Figure 5: On-Resistance vs. Gate-Source Voltage

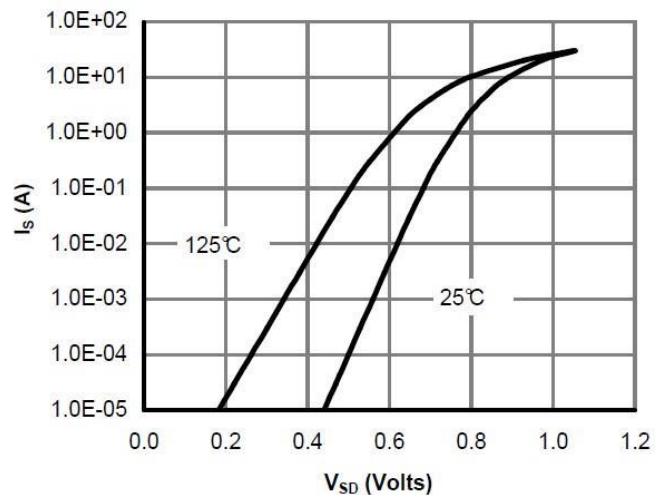


Figure 6: Body-Diode Characteristics

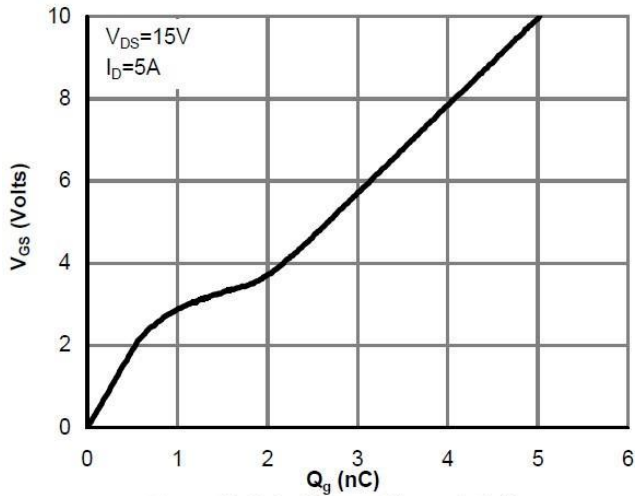


Figure 7: Gate-Charge Characteristics

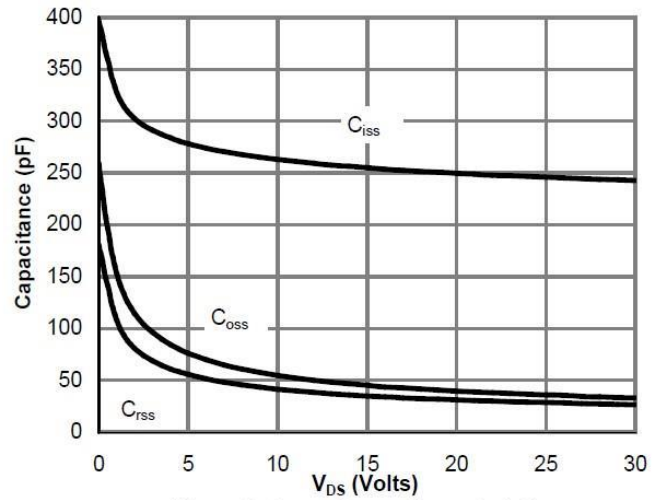


Figure 8: Capacitance Characteristics

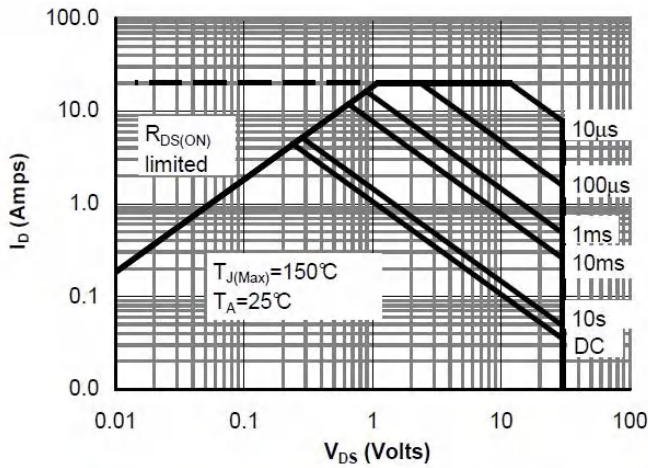


Figure 10: Maximum Forward Biased Safe Operating Area

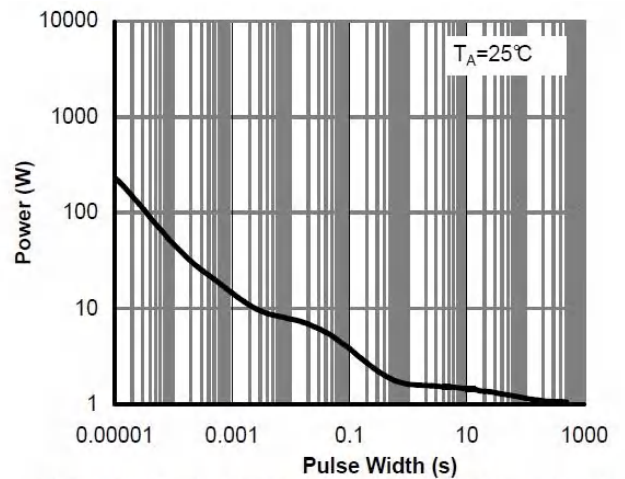


Figure 11: Single Pulse Power Rating Junction-to-Ambient

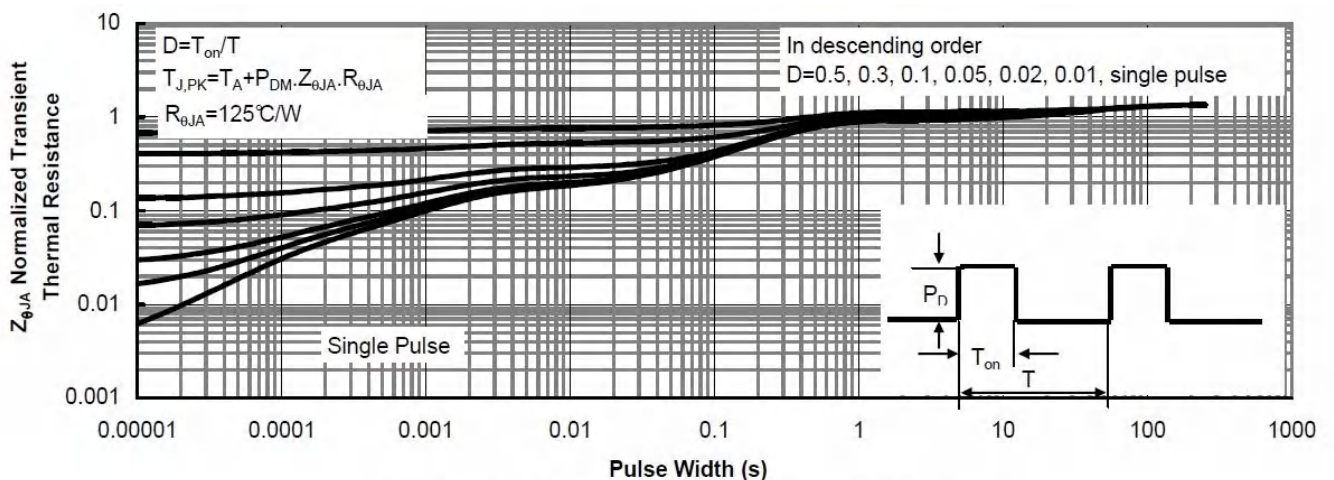
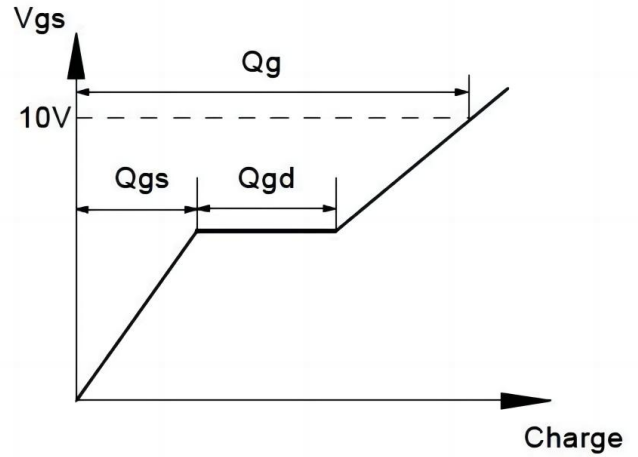
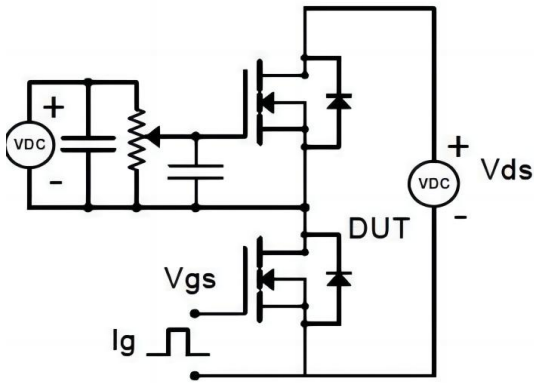


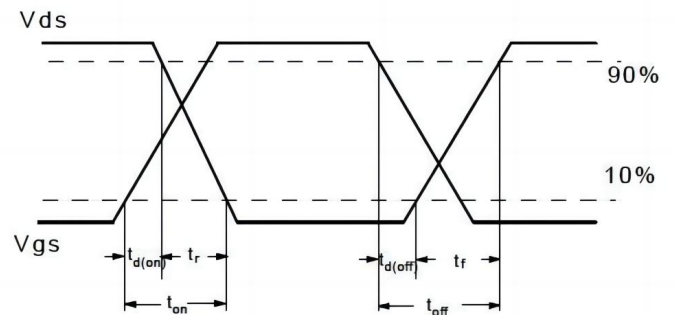
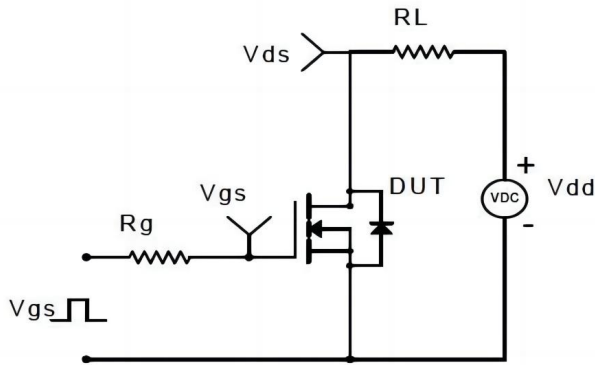
Figure 12: Normalized Maximum Transient Thermal Impedance

Gate Charge Test Circuit & Waveform

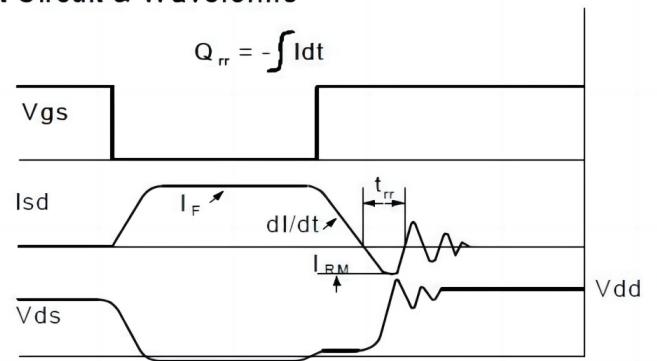
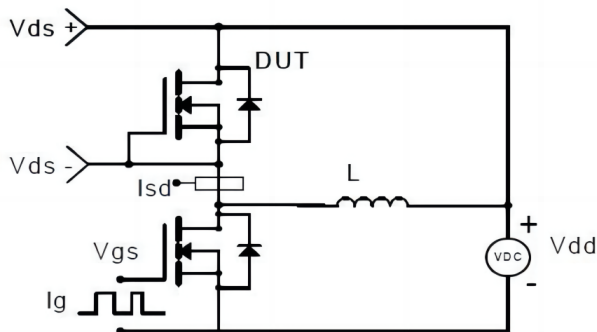


Resistive Switching Test Circuit & Waveforms

Resistive Switching Test Circuit & Waveforms

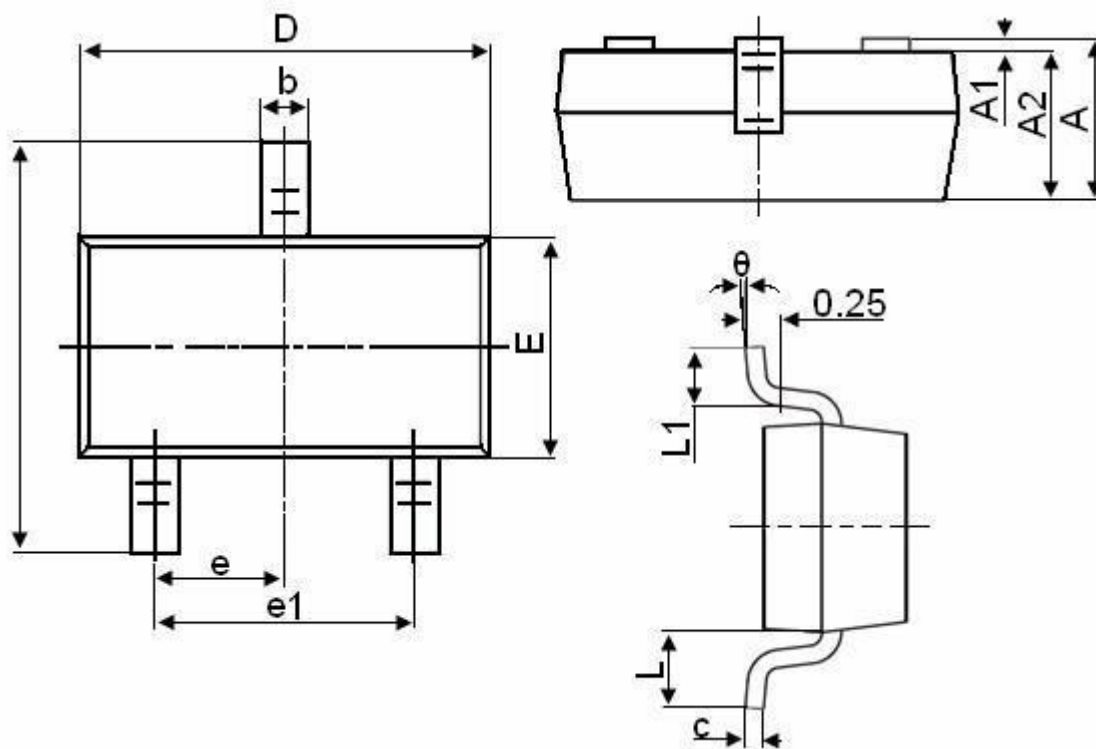


Diode Recovery Test Circuit & Waveforms



## Package Information

SOT23-3L



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.800	3.000
E	1.500	1.700
E1	2.650	2.950
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.600
θ	0°	8°

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