



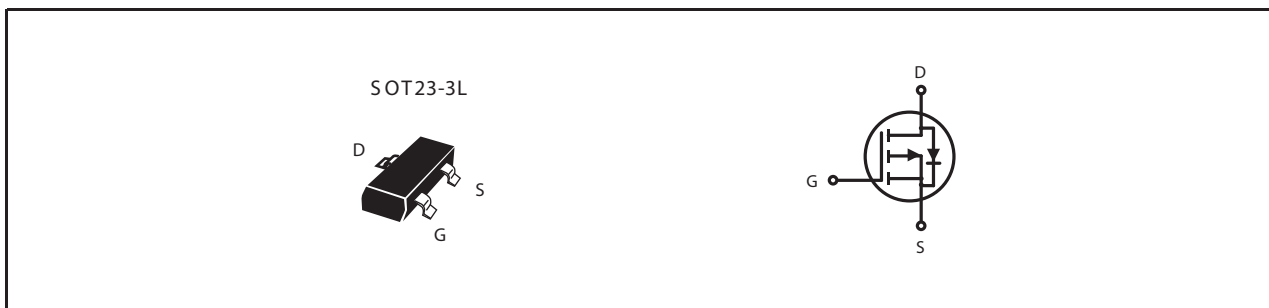
## P-Channel Enhancement Mode Field Effect Transistor

### PRODUCT SUMMARY

V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> (mΩ) Typ
-20V	-2.6A	95 @ V <sub>GS</sub> =-4.5V
		130 @ V <sub>GS</sub> =-2.5V

### FEATURES

- Super high dense cell design for low R<sub>DS(ON)</sub>.
- Rugged and reliable.
- Surface Mount Package.



### ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub>=25°C unless otherwise noted)

Symbol	Parameter	Limit	Units	
V <sub>DS</sub>	Drain-Source Voltage	-20	V	
V <sub>GS</sub>	Gate-Source Voltage	±10	V	
I <sub>D</sub>	Drain Current-Continuous <sup>a</sup>	T <sub>C</sub> =25°C	-2.6	A
		T <sub>C</sub> =70°C	-2.1	A
I <sub>DM</sub>	-Pulsed <sup>b</sup>	9.8	A	
P <sub>D</sub>	Maximum Power Dissipation <sup>a</sup>	T <sub>C</sub> =25°C	1.25	W
		T <sub>C</sub> =70°C	0.8	W
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 to 150	°C	

### THERMAL CHARACTERISTICS

Symbol	Parameter	Limit	Units
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient <sup>a</sup>	100	°C/W

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## ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =-250uA	-20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-16V , V <sub>GS</sub> =0V			-1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±10V , V <sub>DS</sub> =0V			±100	nA
<b>ON CHARACTERISTICS</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.5	-0.8	-1.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-4.5V , I <sub>D</sub> =-2.6A		95	120	m ohm
		V <sub>GS</sub> =-2.5V , I <sub>D</sub> =-2.2A		130	160	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =-5V , I <sub>D</sub> =-2.6A		7		S
<b>DYNAMIC CHARACTERISTICS <sup>c</sup></b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1.0MHz		330		pF
C <sub>OSS</sub>	Output Capacitance			75		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			60		pF
<b>SWITCHING CHARACTERISTICS <sup>c</sup></b>						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-10V I <sub>D</sub> =-1A		40		ns
t <sub>r</sub>	Rise Time			85		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time	V <sub>GS</sub> =-4.5V R <sub>GEN</sub> = 6 ohm		280		ns
t <sub>f</sub>	Fall Time			130		ns
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-10V, I <sub>D</sub> =-2.6A, V <sub>GS</sub> =-4.5V		4.2		nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-10V, I <sub>D</sub> =-2.6A, V <sub>GS</sub> =-4.5V		0.4		nC
Q <sub>gd</sub>	Gate-Drain Charge			1.5		nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
I <sub>S</sub>	Maximum Continuous Drain-Source Diode Forward Current				-1	A
V <sub>SD</sub>	Diode Forward Voltage <sup>b</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> = -1A		-0.86	-1.2	V

### Notes

- a. Surface Mounted on FR4 Board, t ≤ 10sec.
- b. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
- c. Guaranteed by design, not subject to production testing.

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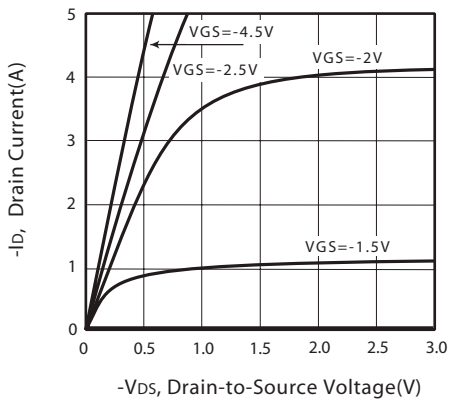


Figure 1. Output Characteristics

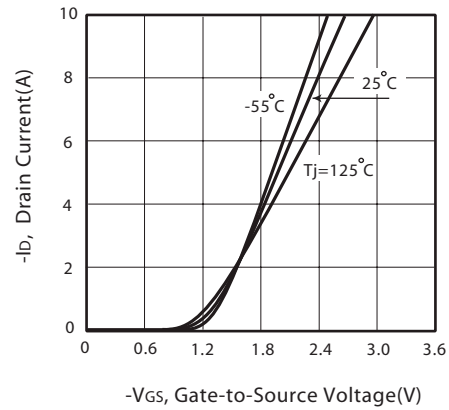


Figure 2. Transfer Characteristics

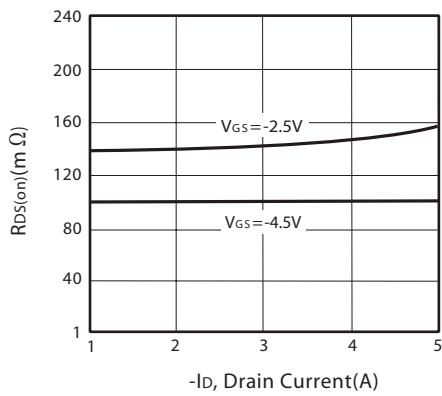


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

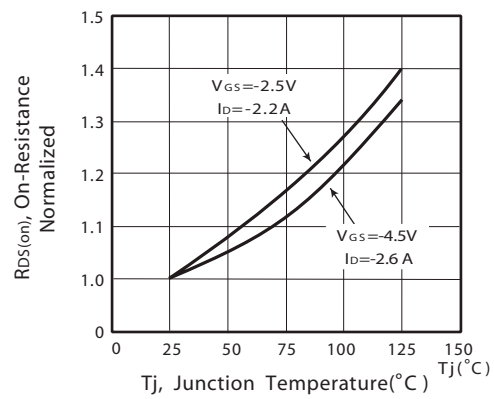


Figure 4. On-Resistance Variation with Drain Current and Temperature

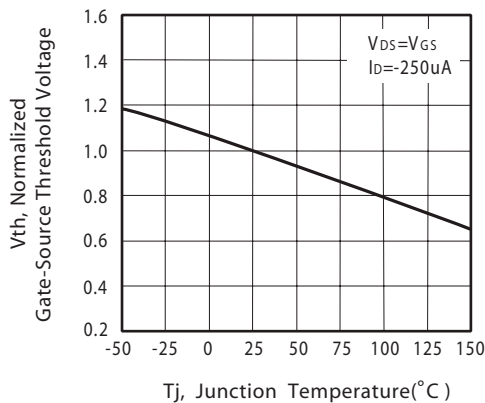


Figure 5. Gate Threshold Variation with Temperature

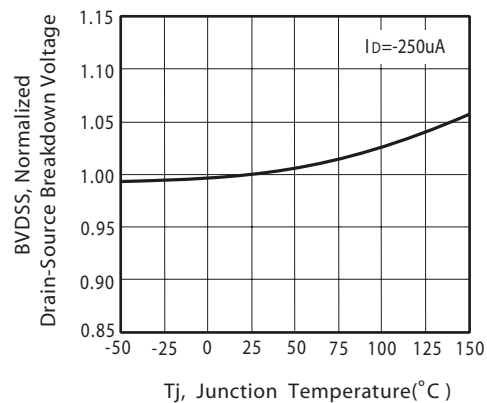


Figure 6. Breakdown Voltage Variation with Temperature

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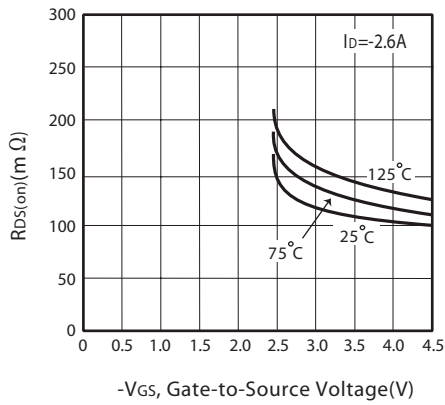


Figure 7. On-Resistance vs. Gate-Source Voltage

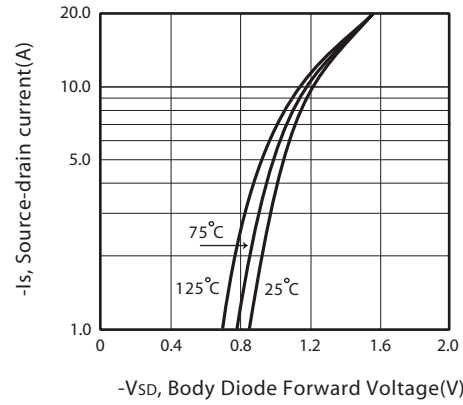


Figure 8. Body Diode Forward Voltage Variation with Source Current

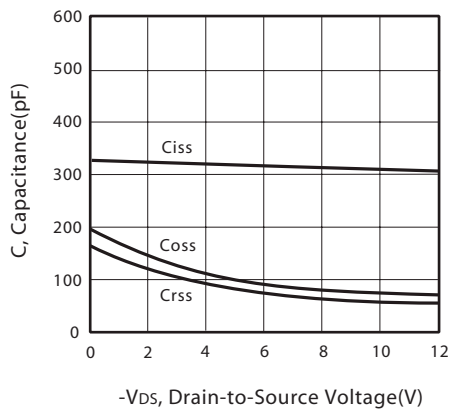


Figure 9. Capacitance

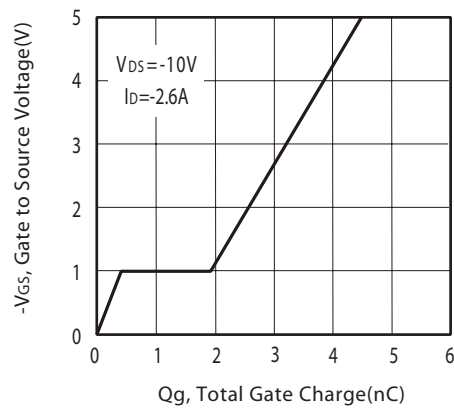


Figure 10. Gate Charge

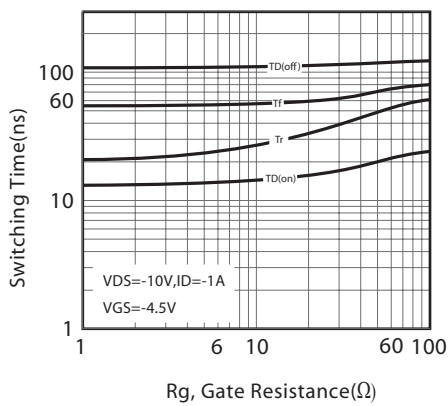


Figure 11. switching characteristics

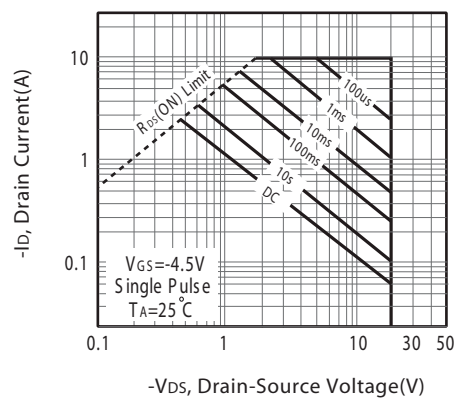


Figure 12. Maximum Safe Operating Area

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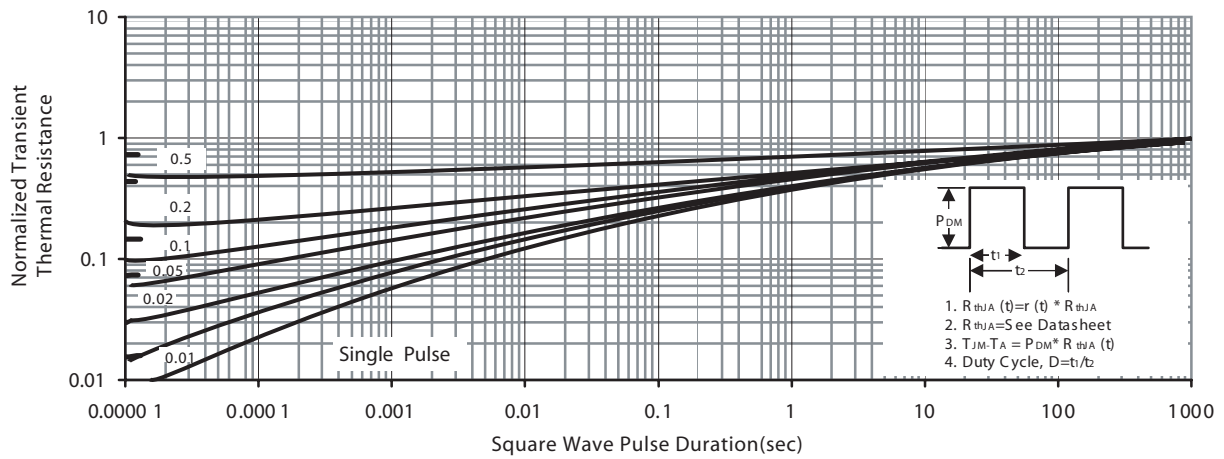
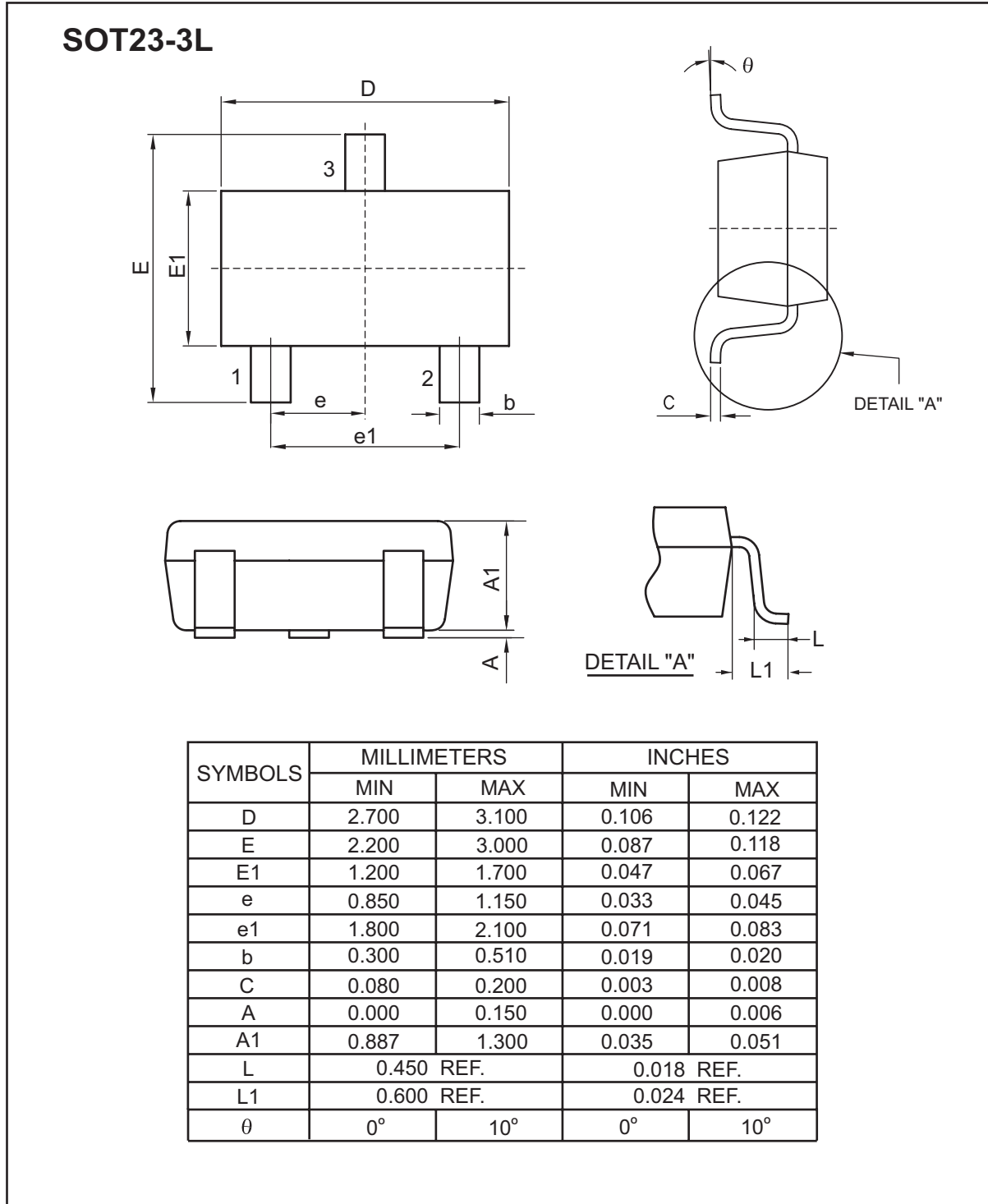


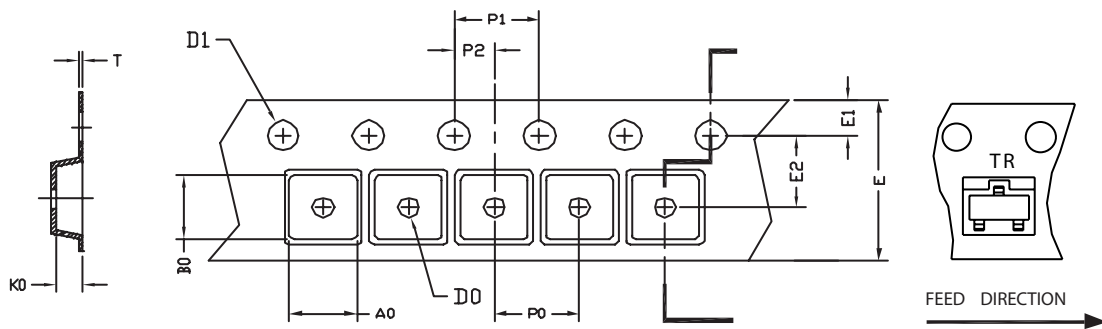
Figure 13. Normalized Thermal Transient Impedance Curve

## PACKAGE OUTLINE DIMENSIONS



## SOT23-3L Tape and Reel Data

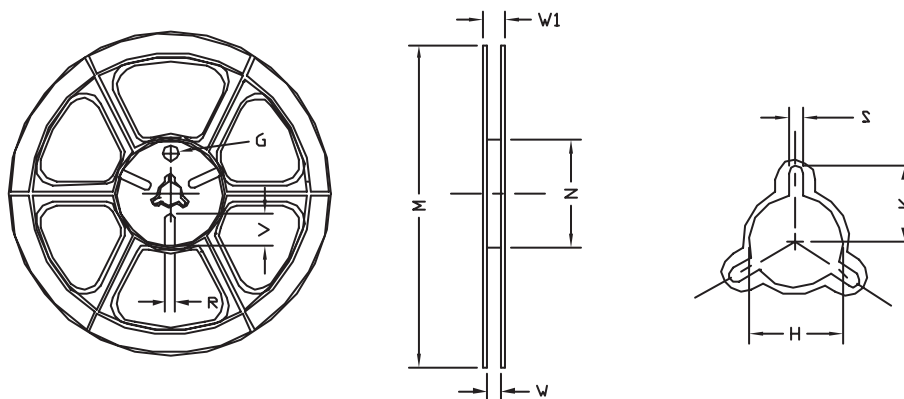
### SOT23-3L Carrier Tape



UNIT:mm

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOT23-3L	3.15 $\pm 0.10$	2.77 $\pm 0.10$	1.22 $\pm 0.10$	$\phi 1.00$ $+0.05$	$\phi 1.50$ $+0.10$	8.00 $+0.30$ $-0.10$	1.75 $\pm 0.10$	3.50 $\pm 0.05$	4.00 $\pm 0.10$	4.00 $\pm 0.10$	2.00 $\pm 0.05$	0.22 $\pm 0.04$

### SOT23-3L Reel



UNIT:mm

TAPE SIZE	REEL SIZE	M	N	W	W1	H	K	S	G	R	V
8mm	$\phi 178$	$\phi 178$ $\pm 1$	$\phi 60$ $\pm 1$	9.00 $\pm 0.5$	12.00 $\pm 0.5$	$\phi 13.5$ $\pm 0.5$	10.5	2.00 $\pm 0.5$	$\phi 10.0$	5.00	18.00