



TM07P06MI

P-Channel Enhancement Mosfet

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

General Features

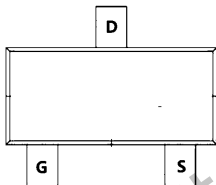
$V_{DS} = -60V$ $I_D = -7A$

$R_{DS(ON)} = 80m\Omega (typ.) @ V_{GS} = -10V$

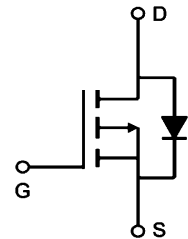
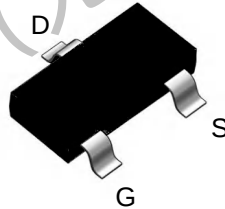
100% UIS Tested
100% R_g Tested



MI:SOT-23-3L



Marking: 7P06



Absolute Maximum Ratings ($T_c = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-7	A
$I_D @ T_A = 100^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-5	A
I_{DM}	Pulsed Drain Current	-24.5	A
$P_D @ T_A = 25^\circ C$	Total Power Dissipation	1.1	W
$P_D @ T_A = 100^\circ C$	Total Power Dissipation	0.4	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	160	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	---	$^\circ C/W$

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Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

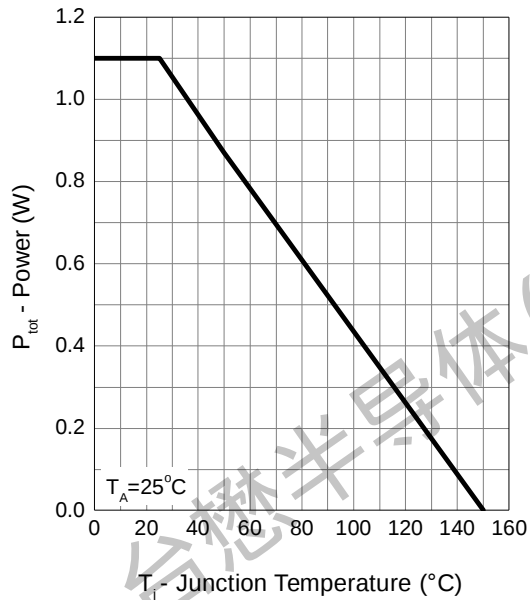
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-48V, V _{GS} =0V T _J =85°C	-	-	-1 -30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.0	-2.0	-3.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^a	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-3A V _{GS} =-4.5V, I _{DS} =-1.9A	- -	80 95	88 105	mΩ
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.8	-1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =-3A, dI _{SD} /dt=100A/μs	-	18	-	ns
Q _{rr}	Reverse Recovery Charge		-	11	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-20V, Frequency=1.0MHz	-	772	-	pF
C _{oss}	Output Capacitance		-	167	-	
C _{rss}	Reverse Transfer Capacitance		-	105	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-20V, R _L =20Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	8	-	ns
t _r	Turn-on Rise Time		-	6	-	
t _{d(OFF)}	Turn-off Delay Time		-	25	-	
t _f	Turn-off Fall Time		-	14	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} =-20V, V _{GS} =-10V, I _{DS} =-3A	-	8.3	-	nC
Q _{gs}	Gate-Source Charge		-	1.7	-	
Q _{gd}	Gate-Drain Charge		-	1.9	-	

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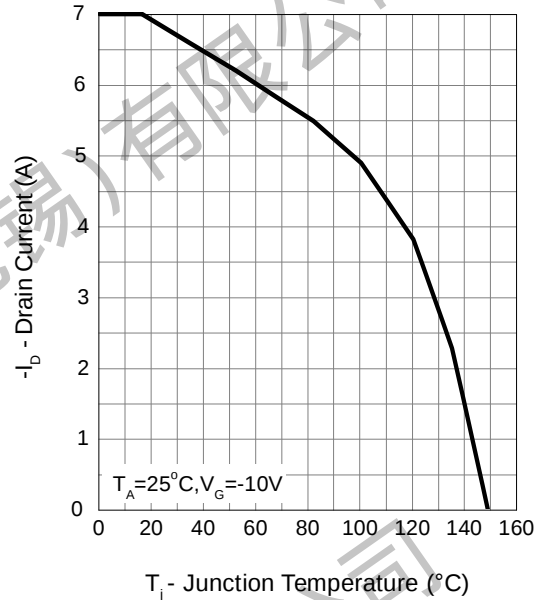
P-Channel Enhancement Mosfet

Typical Operating Characteristics

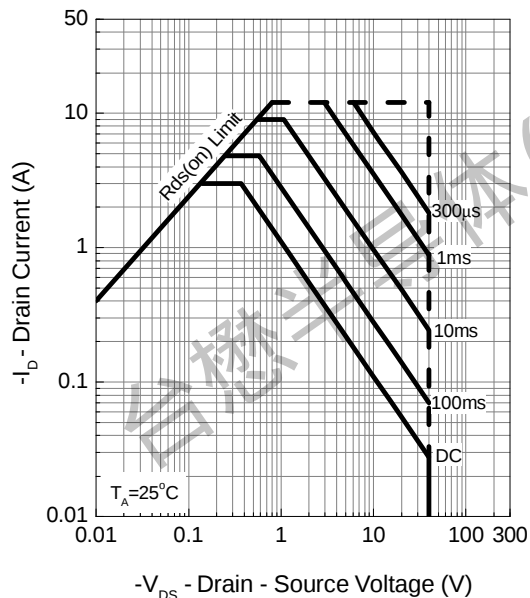
Power Dissipation



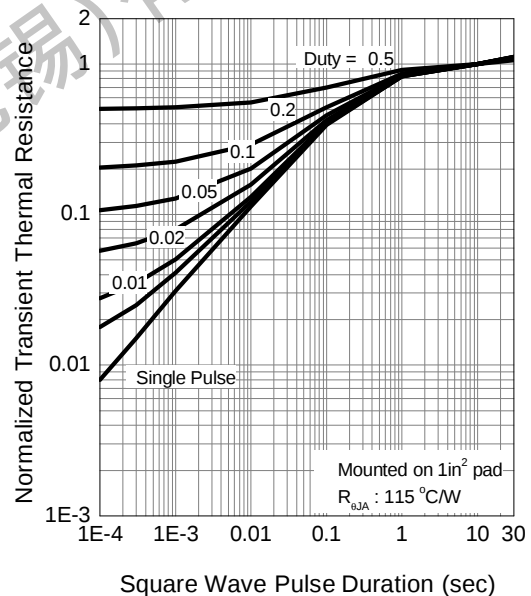
Drain Current



Safe Operation Area

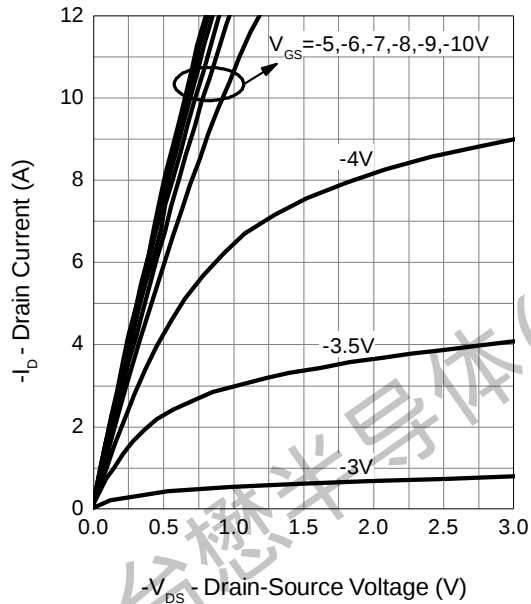


Thermal Transient Impedance

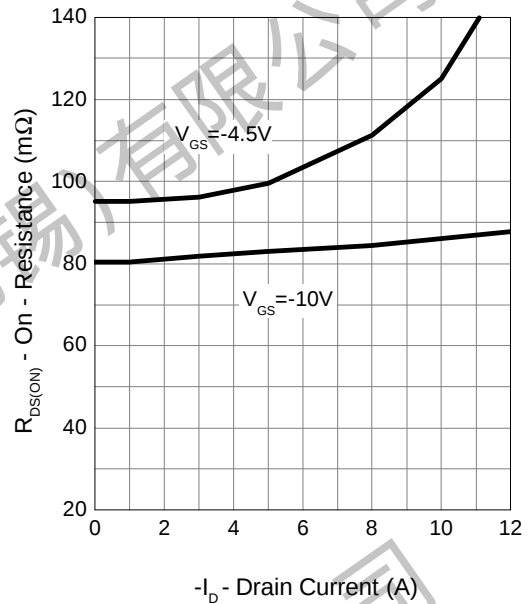


Typical Operating Characteristics

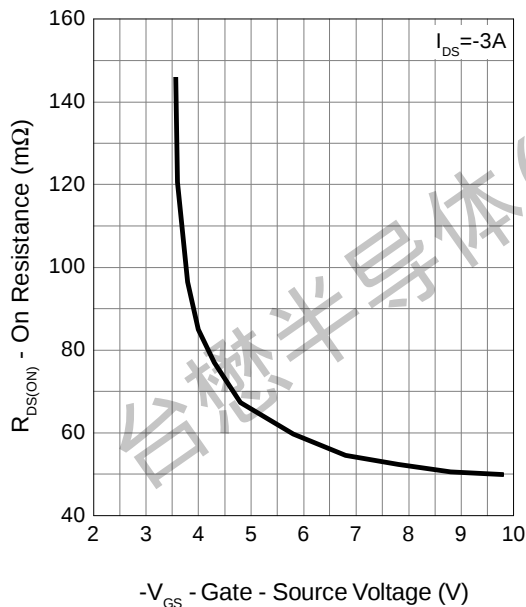
Output Characteristics



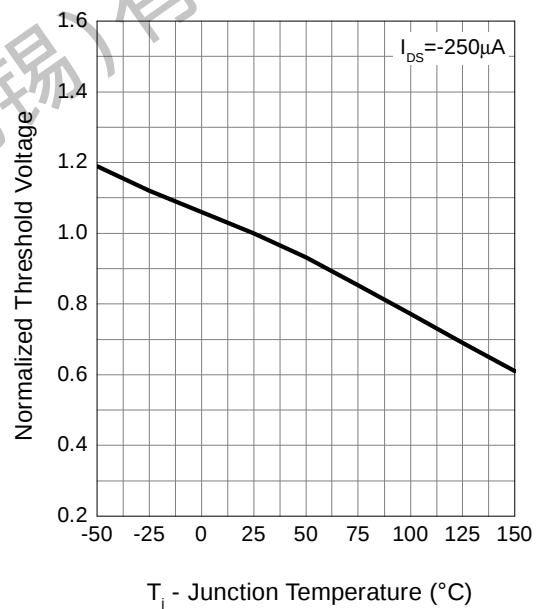
Drain-Source On Resistance



Gate-Source On Resistance

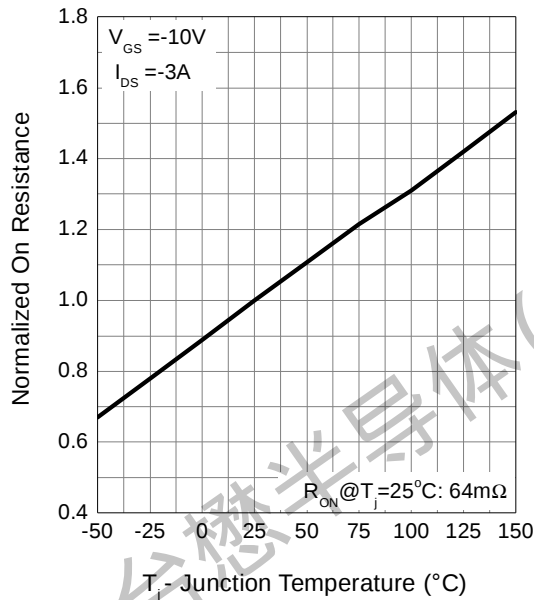


Gate Threshold Voltage

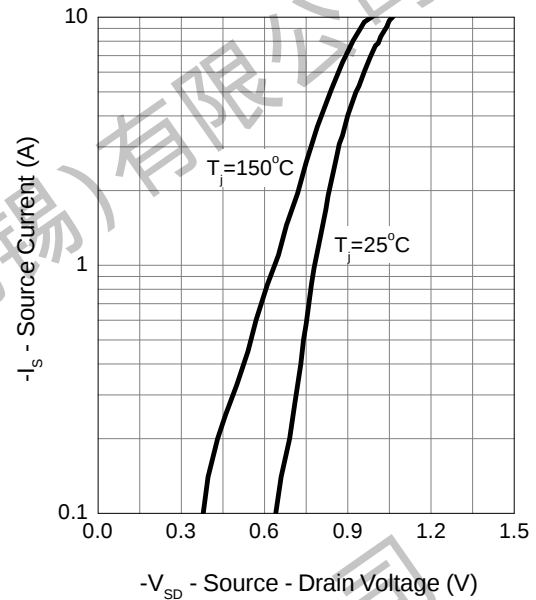


Typical Operating Characteristics

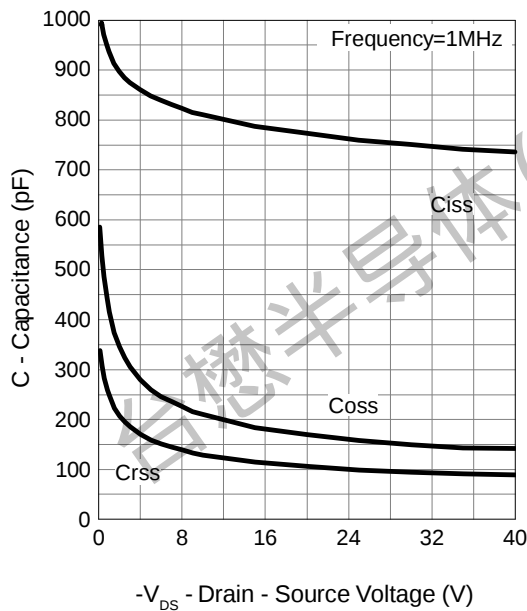
Drain-Source On Resistance



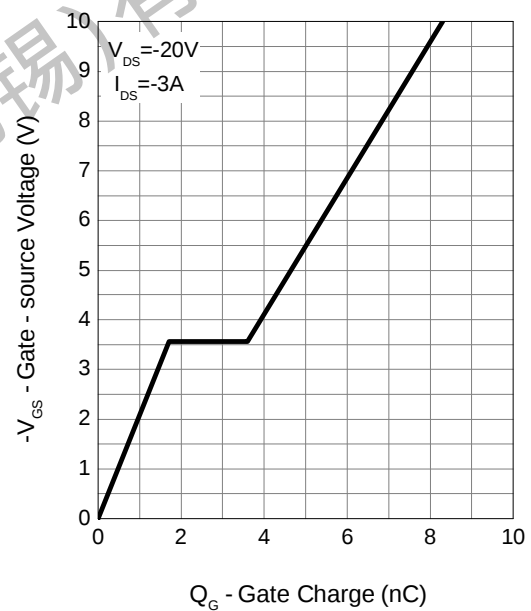
Source-Drain Diode Forward



Capacitance



Gate Charge

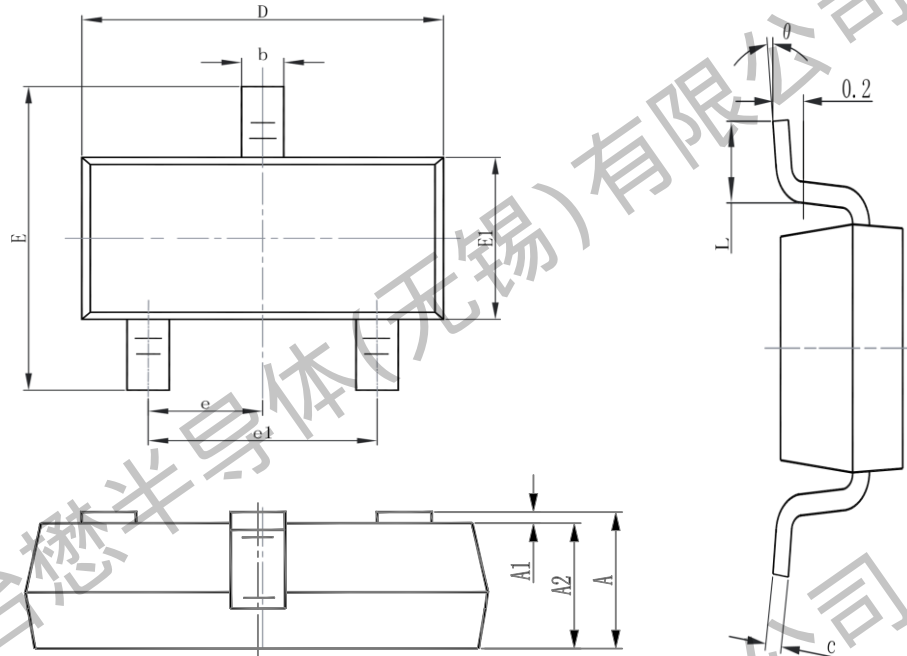




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Package Mechanical Data:SOT-23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

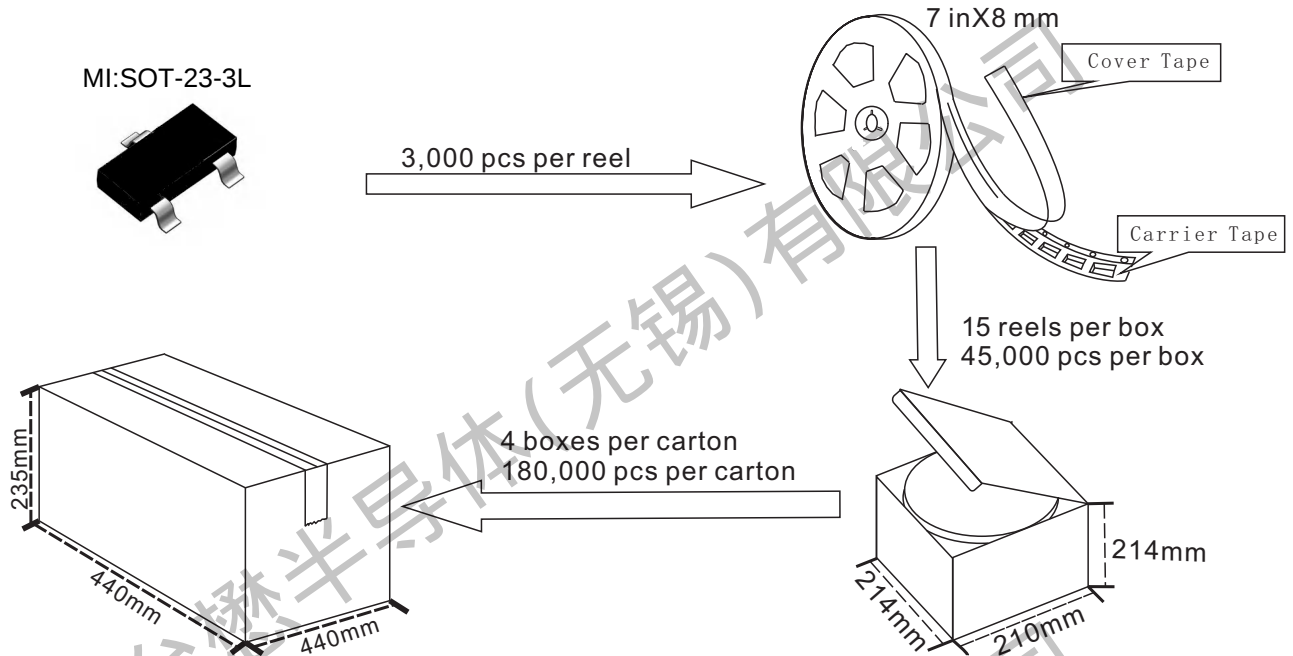


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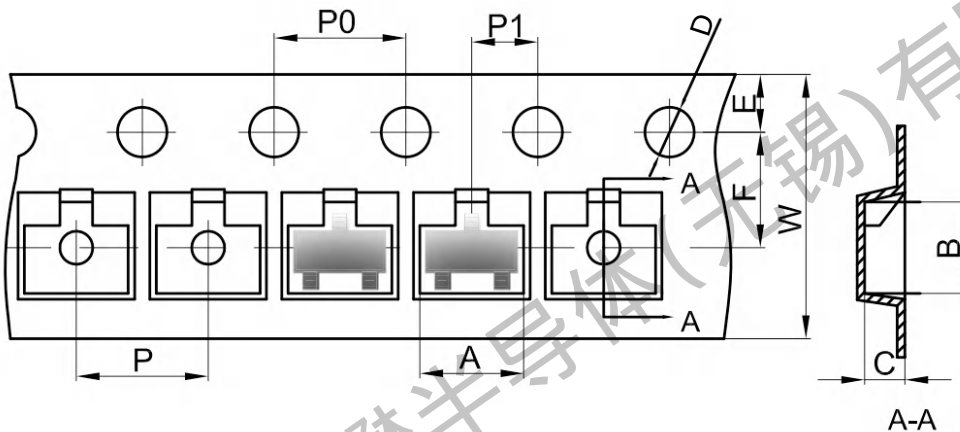
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SOT-23-3L Packing

1. The method of packaging and dimension are shown as below figure. (Dimension in mm)



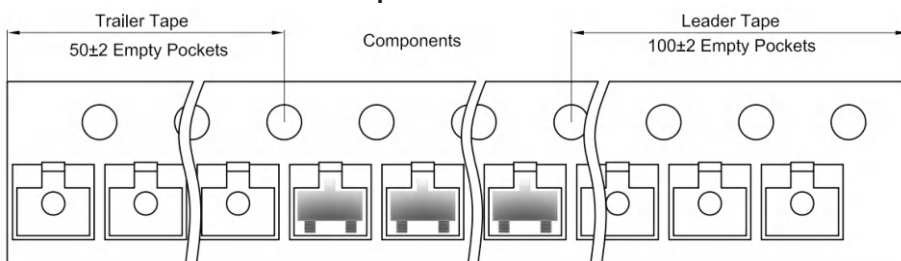
SOT-23-3L Embossed Carrier Tape



Dimensions are in millimeter

Pkg type	A	B	C	D	E	F	P0	P	P1	W
SOT-23-3L	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-3L Tape Leader and Trailer



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Revision history:

Date	Rev	Description	Page
2023.06.02	23.06	Original	