TM07H02MI6

N+N-Channel Enhancement Mode Mosfet

General Description

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

Applications

- Load switch
- PWM

General Features

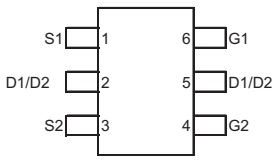
V_{DS} = 20V I_D = 7.0A

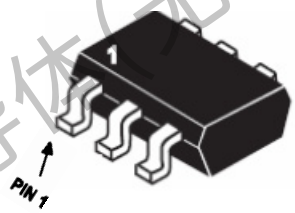
$R_{DS(ON)}$ =19mΩ(typ.) @V_{GS}=4.5V

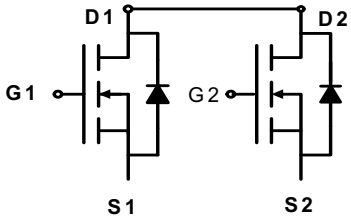
100% UIS Tested

100% R_g Tested

MI6:SOT-23-6L







Marking: 8205A

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25°C	Continuous Drain Current, V_{GS} @ 4.5V	7.0	A
I_D@T_A=70°C	Continuous Drain Current, V_{GS} @ 4.5V	4.2	A
I_{DM}	Pulsed Drain Current	25	A
P_D@T_A=25°C	Total Power Dissipation	1.25	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	125	°C/W
R	Thermal Resistance Junction Case			°C/W

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Electrical Characteristics (T_J=25℃ unless otherwise specified)

Gate-Body Leakage Current	I_{GSS}	V_{GS}=±10V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	0.9	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4A	-	19	24	mΩ
		V_{GS}=2.5V, I_D=3A	-	25	32	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=4A	-	10	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=8V,V_{GS}=0V, F=1.0MHz	-	600	-	PF
Output Capacitance	C_{oss}		-	330	-	PF
Reverse Transfer Capacitance	C_{rss}		-	140	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=1A V_{GS}=4V,R_{GEN}=10Ω	-	18	-	nS
Turn-on Rise Time	t_r		-	5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	43	-	nS
Turn-Off Fall Time	t_f		-	20	-	nS
Total Gate Charge	Q_g	V_{DS}=10V,I_D=4A, V_{GS}=4.5V	-	11	-	nC
Gate-Source Charge	Q_{gs}		-	2.3	-	nC
Gate-Drain Charge	Q_{gd}		-	2.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=2A	-	0.8	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	7	A

Typical Performance Characteristics

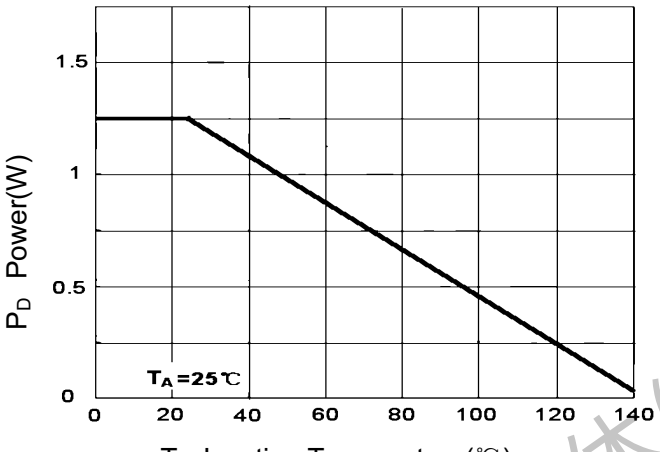

Figure 1 Power Dissipation

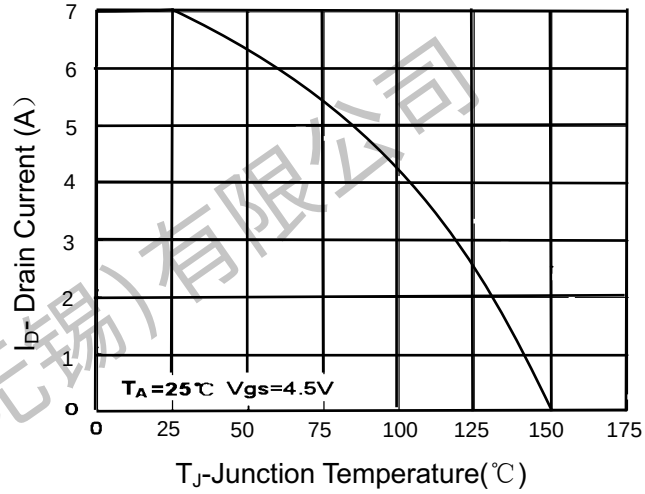

Figure 2 Drain Current

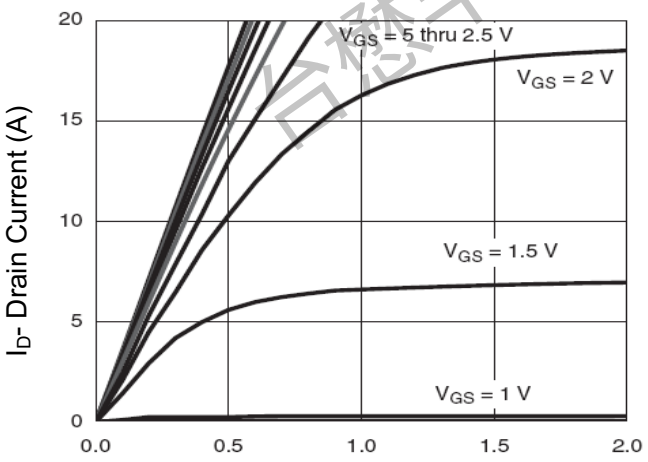

Figure 3 Output Characteristics

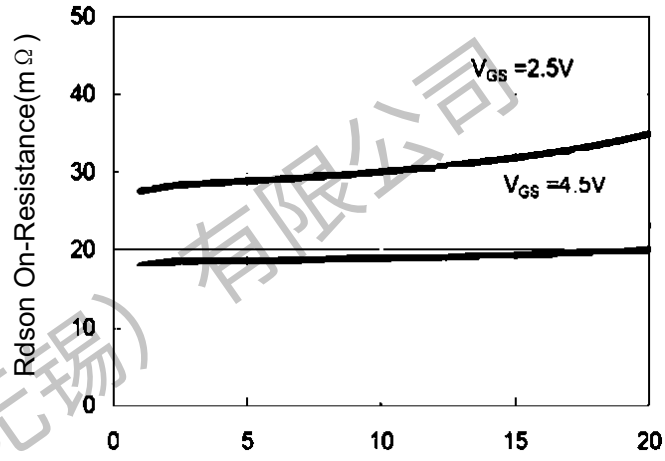

Figure 4 Drain-Source On-Resistance

TM07H02MI6

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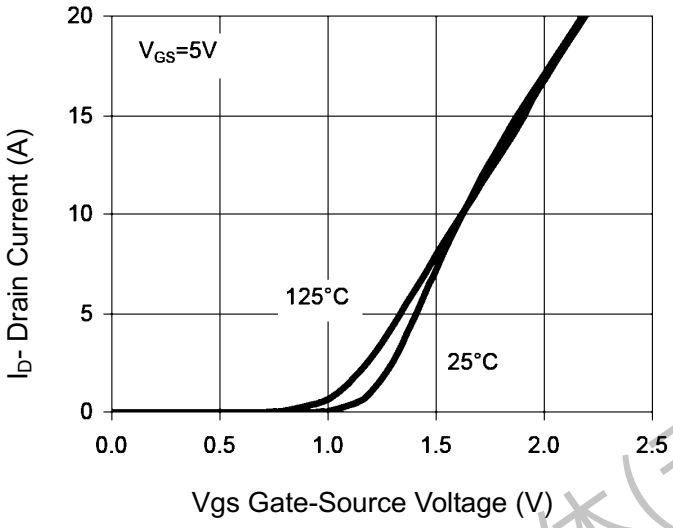

Figure 5 Transfer Characteristics

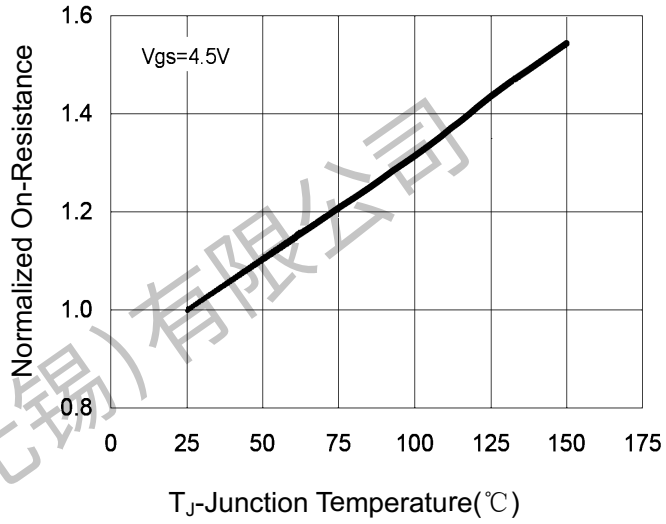

Figure 6 Drain-Source On-Resistance

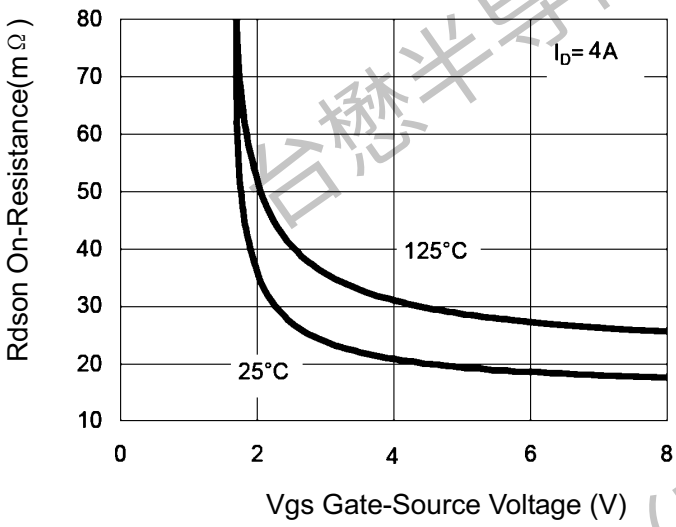

Figure 7 Rdson vs Vgs

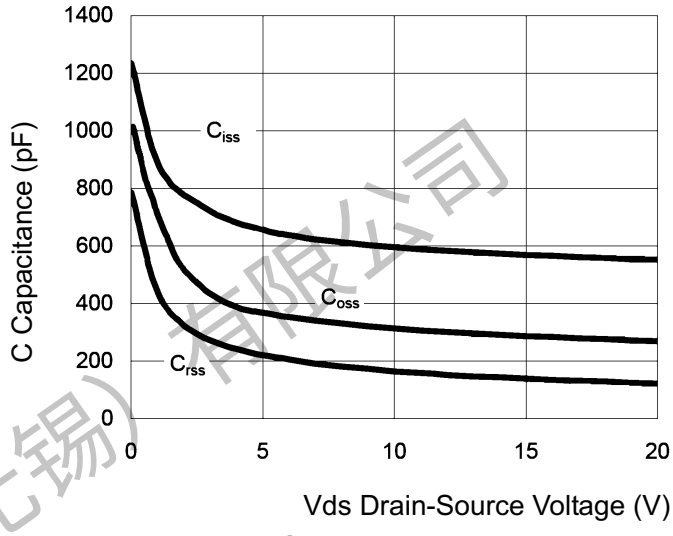

Figure 8 Capacit ance vs Vds

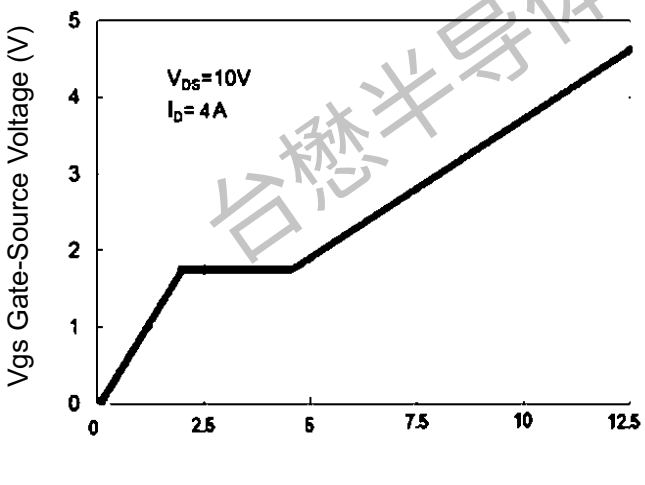

Figure 9 Gate Charge

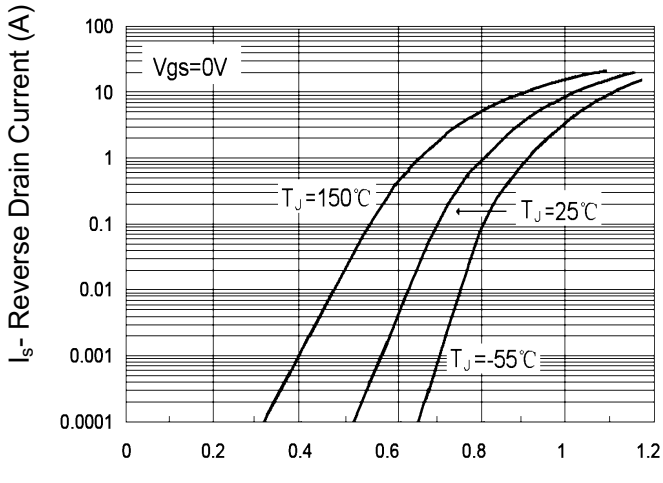

Figure 10 Source- Drain Diode Forward

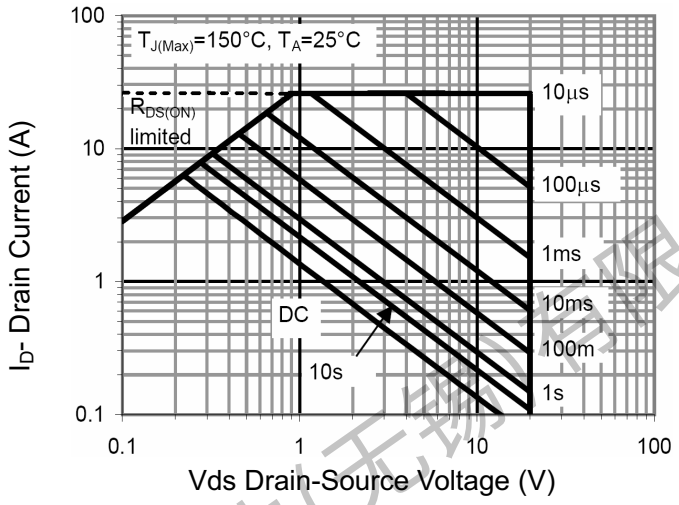

Figure 11 Safe Operation Area

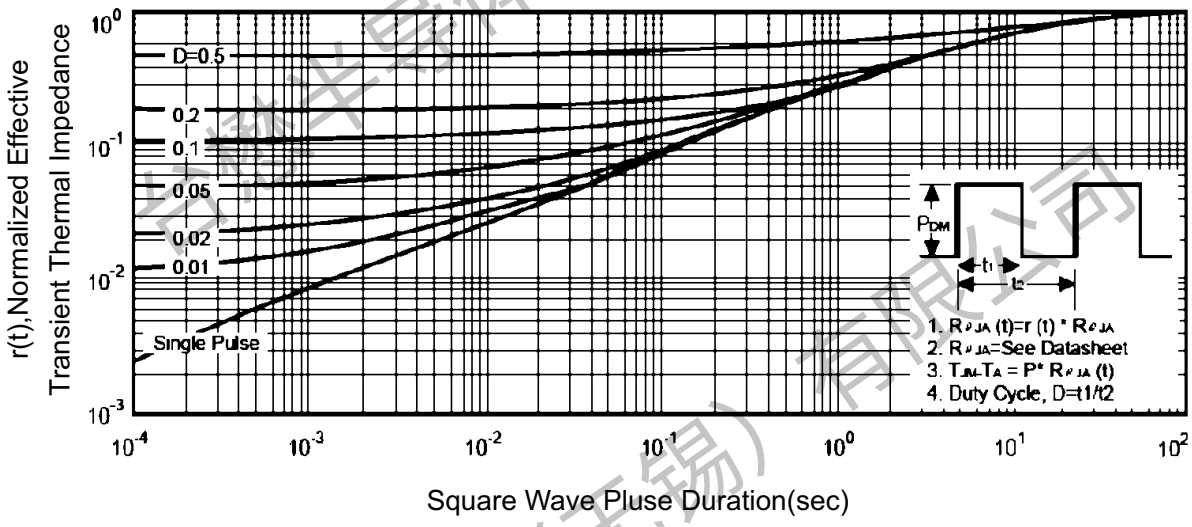

Figure 12 Normalized Maximum Transient Thermal Impedance

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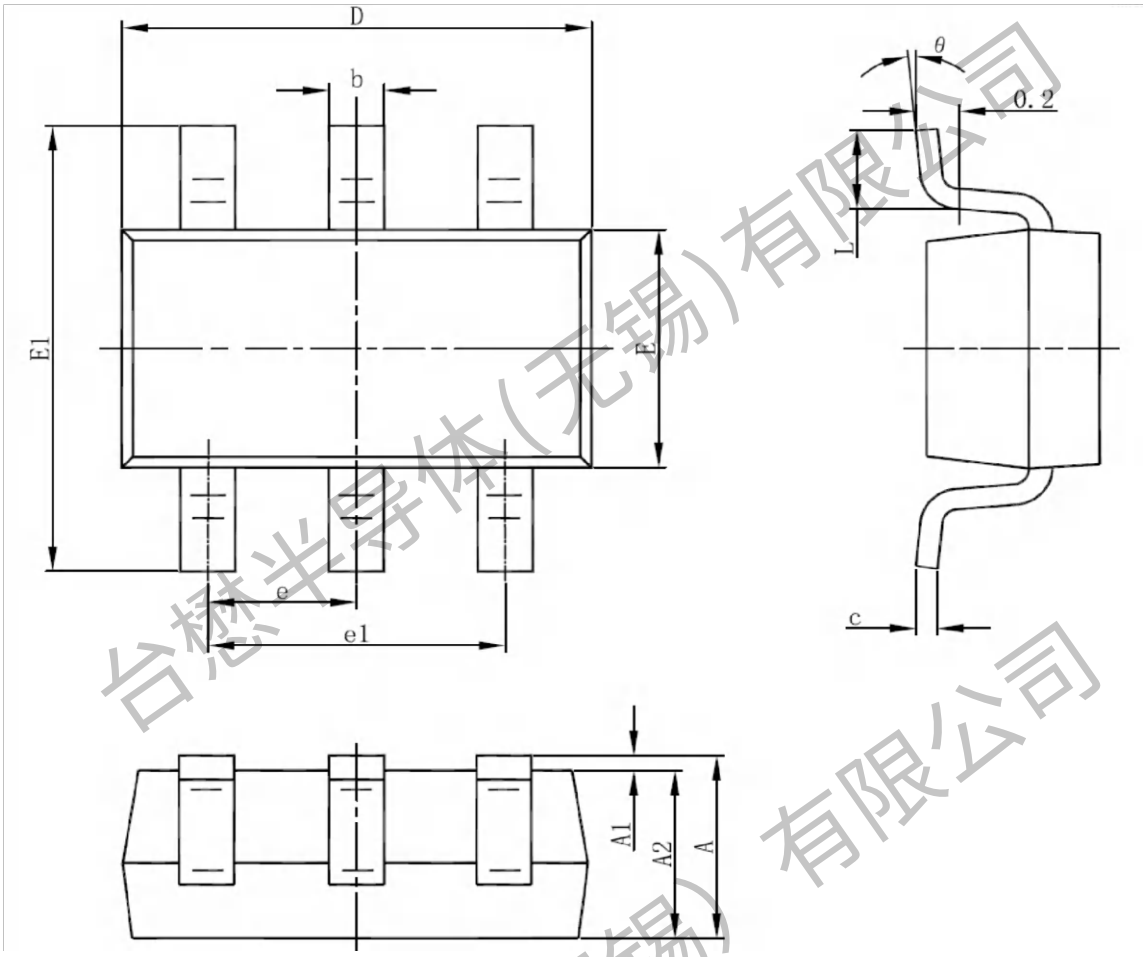
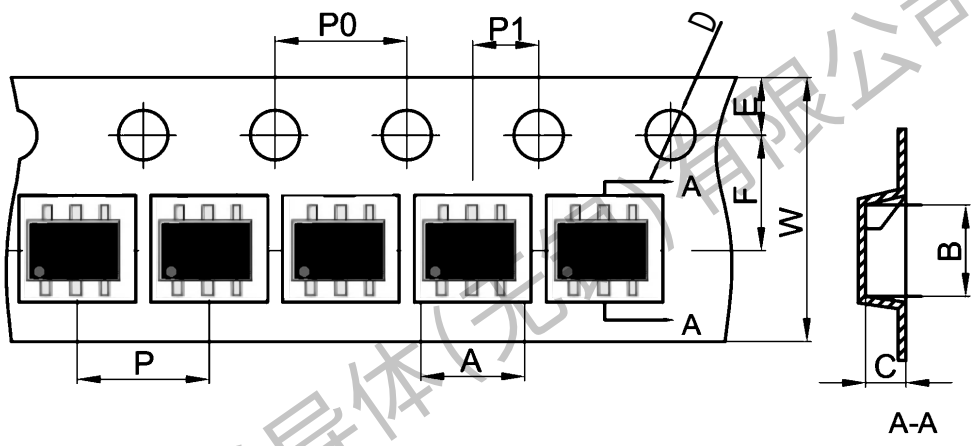
Package Mechanical Data:SOT-23-6L



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
E	1.500	1.700	0.059	0.067
E1	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°

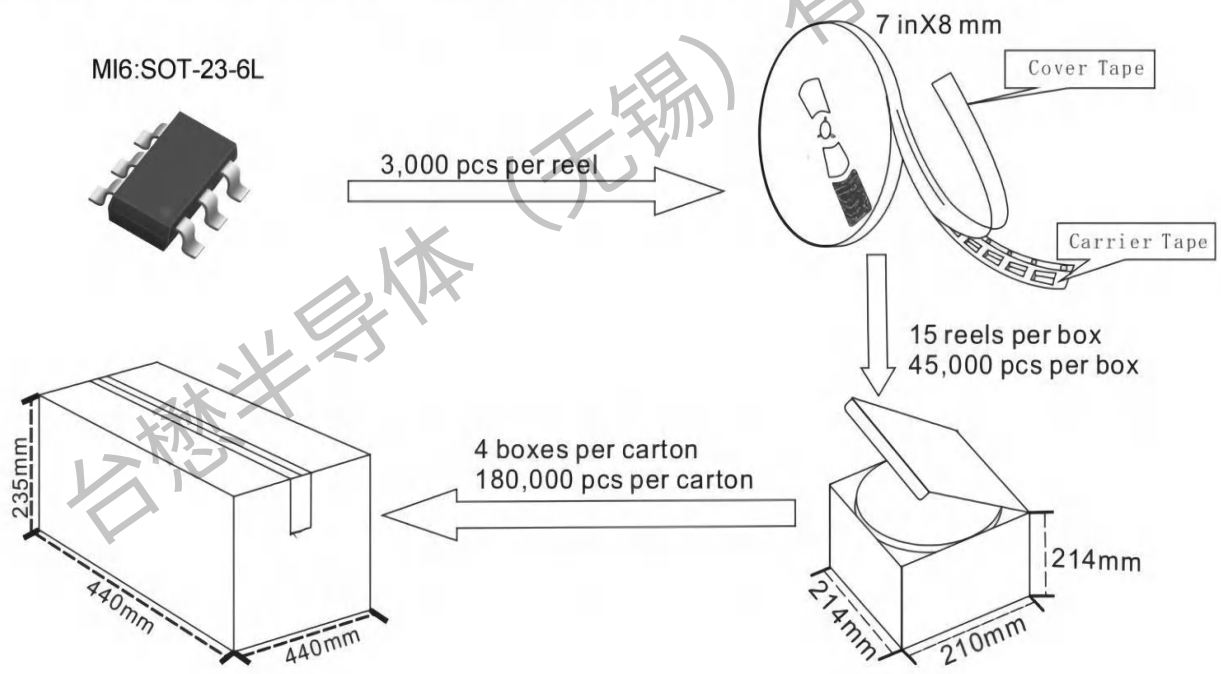
SOT-23-6L Embossed Carrier Tape



Dimensions are in millimeter										
Pkg type	A	B	C	D	E	F	P0	P	P1	W
SOT-23-6L	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-6L Packing

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



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Revision history:

Date	Rev	Description	Page
2023.08.22	23.08	Original	