TM003N06I

N-Channel Enhancement Mosfet

General Description

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

Applications

- Load switch
- PWM

General Features

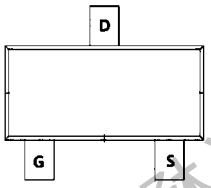
V_{DS} =60V I_D =0.3A

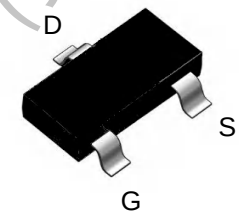
$R_{DS(ON)}$=1500mΩ(typ.)@ V_{GS}= 10V

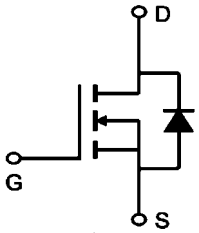
100% UIS Tested

100% R_g Tested

I:SOT-23







Marking:7002

Absolute Maximum Ratings (T_C=25℃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℃	Continuous Drain Current, V_{GS} @ 10V	0.3	A
I_{DM}	Pulsed Drain Current	1.5	A
P_D@T_C=25℃	Total Power Dissipation	0.35	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	357	℃/W
$R_{\theta JC}$	Thermal Resistance Junction Case	---	---	℃/W

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage (I_D =250uA,V_{GS}=0V)	BV_{DSS}	60	—	—	V
Gate Threshold Voltage (I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	1	2	3	V
Zero Gate Voltage Drain Current (V_{GS}=0V, V_{DS}= 60V)	I_{DSS}	—	—	0.08	uA
Gate Body Leakage (V_{GS}=±20V, V_{DS}=0V)	I_{GSS}	—	—	±0.08	uA
Static Drain-Source On-State Resistance (I_D=300mA,V_{GS}=10V) (I_D=200mA,V_{GS}=4.5V)	$R_{DS(ON)}$	—	1500 2200	2200 3000	mΩ
Diode Forward Voltage Drop (I_{SD}=300mA,V_{GS}=0V)	V_{SD}	—	—	1.2	V
Input Capacitance (V_{GS}=0V, V_{DS}=30V,f=1MHz)	C_{ISS}	—	27.5	—	pF
Common Source Output Capacitance (V_{GS}=0V, V_{DS}=30V,f=1MHz)	C_{OSS}	—	2.75	—	pF
Reverse Transfer Capacitance (V_{GS}=0V, V_{DS}=30V,f=1MHz)	C_{RSS}	—	1.9	—	pF
Total Gate Charge (V_{DS}=30V, I_D=300mA, V_{GS}=10V)	Q_g	—	1.6	—	nC
Gate Source Charge (V_{DS}=30V, I_D=300mA, V_{GS}=10V)	Q_{gs}	—	0.47	—	nC
Gate Drain Charge (V_{DS}=30V, I_D=300mA, V_{GS}=10V)	Q_{gd}	—	0.25	—	nC
Turn-ON Delay Time (V_{DS}=30V I_D=300mA, R_{GEN}=6Ω,V_{GS}=10V)	$t_{d(on)}$	—	3.3	—	ns
Turn-ON Rise Time (V_{DS}=30V I_D=300mA, R_{GEN}=6Ω,V_{GS}=10V)	t_r	—	19	—	ns
Turn-OFF Delay Time (V_{DS}=30V I_D=300mA, R_{GEN}=6Ω,V_{GS}=10V)	$t_{d(off)}$	—	9.6	—	ns
Turn-OFF Fall Time 关 (V_{DS}=30V I_D=300mA, R_{GEN}=6Ω,V_{GS}=10V)	t_f	—	49	—	ns

Typical Characteristic Curve

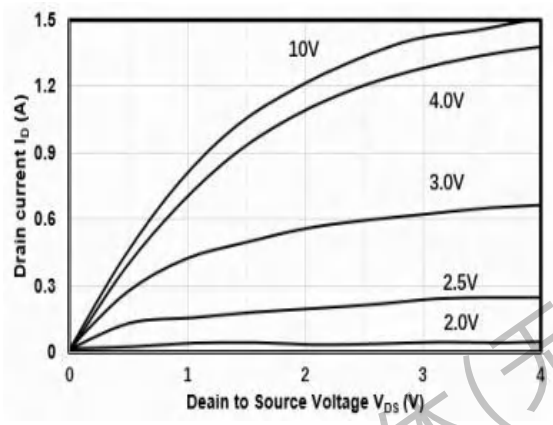


Figure 1: Output Characteristics

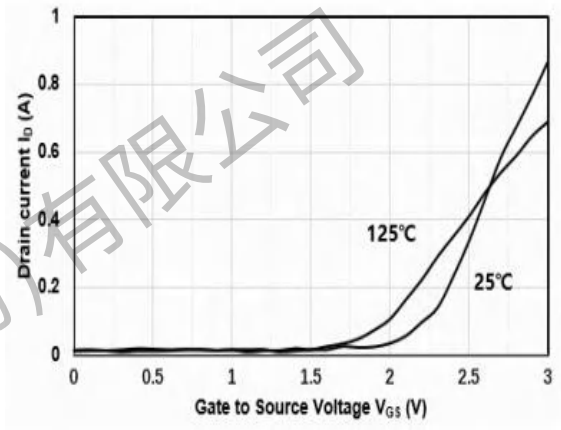


Figure 2: Transfer Characteristics

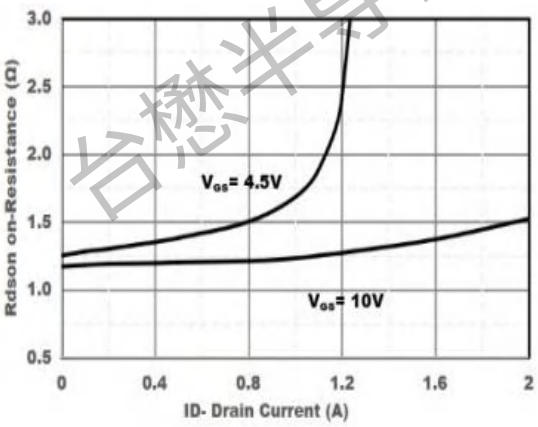


Figure 3: On-Resistance vs. Drain Current

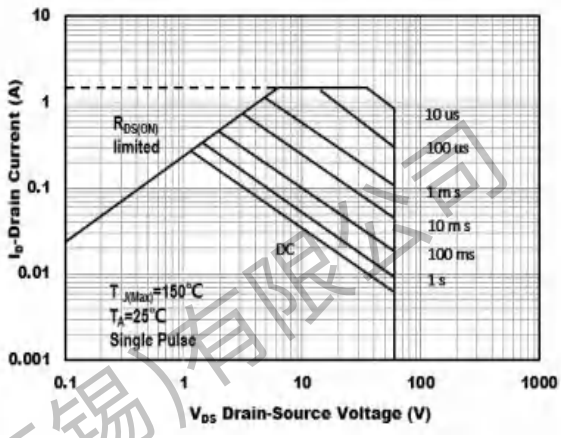


Figure 4: Safe Operating Area

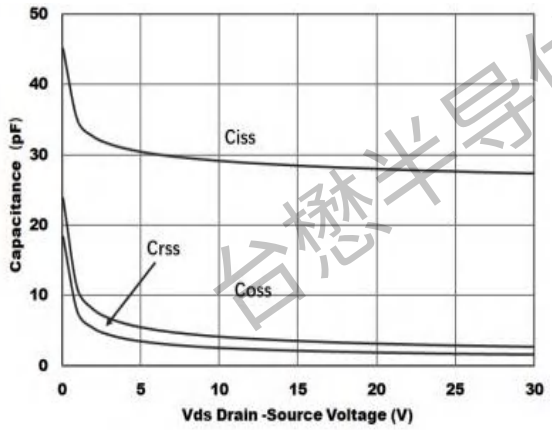


Figure 5: Capacitance Characteristics

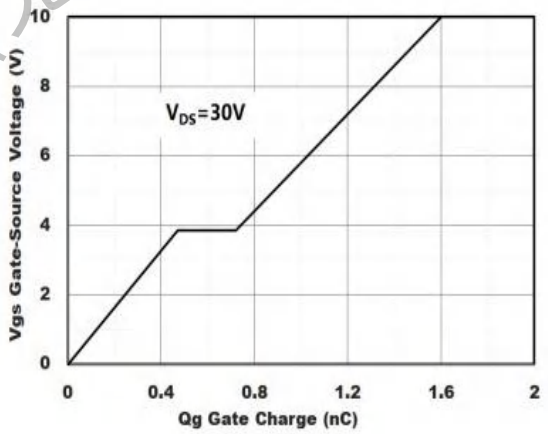
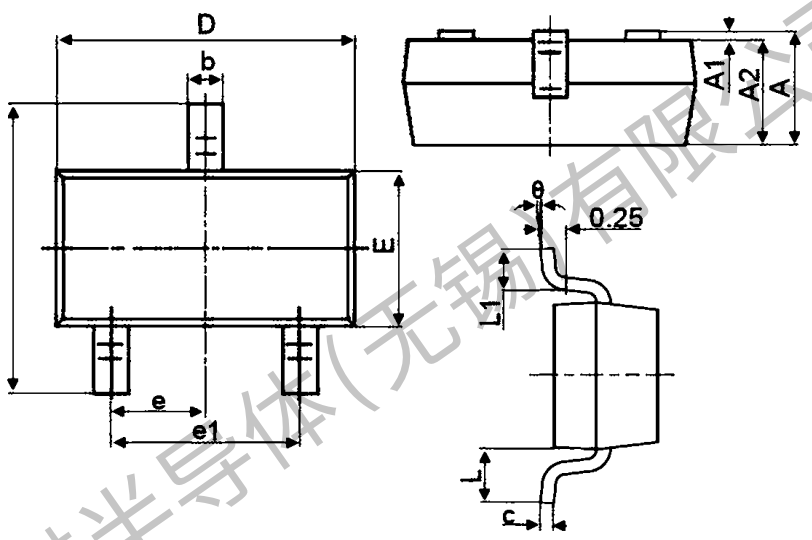


Figure 6: Gate-Charge Characteristics

Package Mechanical Data:SOT-23



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

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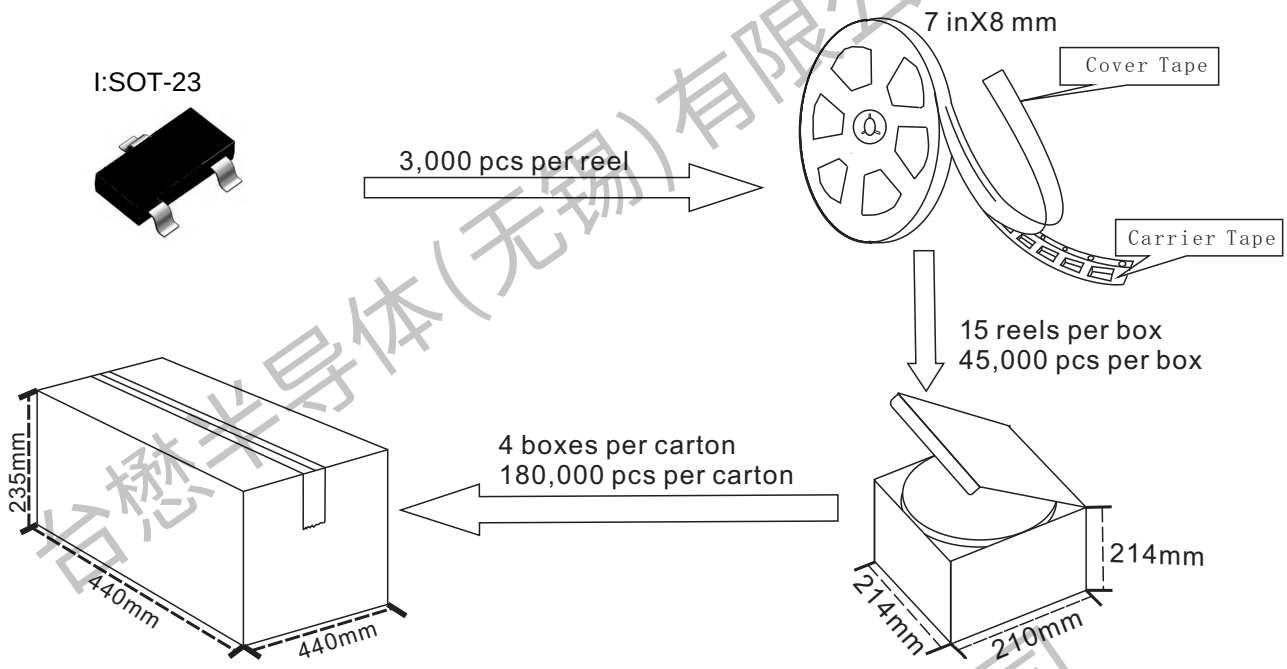
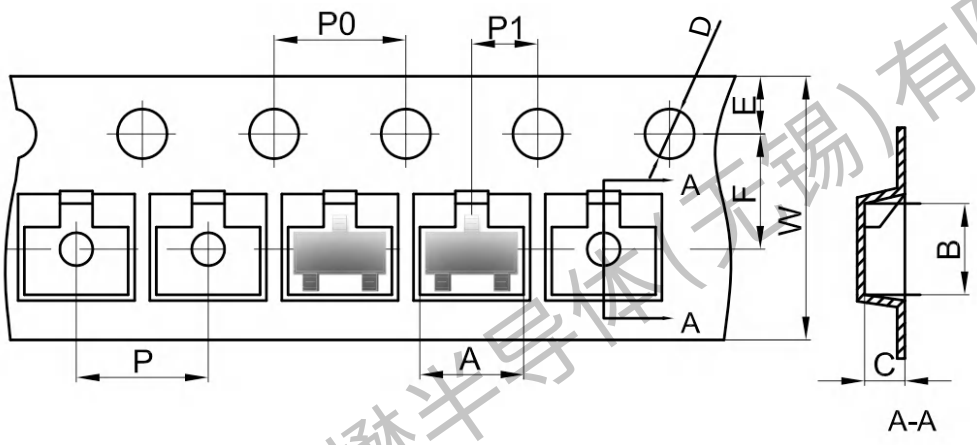
SOT-23 Packing

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

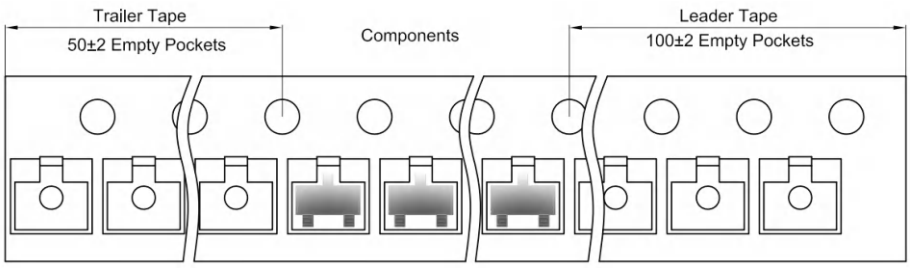


SOT-23 Embossed Carrier Tape



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

SOT-23 Tape Leader and Trailer



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Revision history:

Date	Rev	Description	Page
2023.08.15	23.08	Original	