JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

SOT-23 Plastic-Encapsulate MOSFETS

CJ2304 N-Channel MOSFET

V$_{(BR)DSS}$	R$_{DS(on)}$MAX	I$_D$
30 V	60mΩ@10V	3.3A
	75mΩ@4.5V	

SOT-23
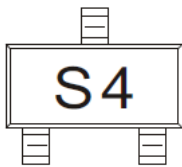
1. GATE
2. SOURCE
3. DRAIN
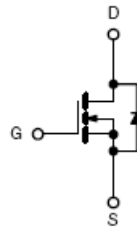
FEATURE

- TrenchFET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING

S4

Equivalent Circuit

Maximum ratings (T$_a$=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V$_{DS}$	30	V
Gate-Source Voltage	V$_{GS}$	±20	
Continuous Drain Current	I$_D$	3.3	A
Pulsed Drain Current	I$_{DM}$	15	
Continuous Source-Drain Diode Current	I$_S$	0.9	
Maximum Power Dissipation	P$_D$	0.35	W
Thermal Resistance from Junction to Ambient (t≤5s)	R$_{θJA}$	357	℃/W
Storage Temperature	T$_J$	150	℃
Junction Temperature	T$_{STG}$	-55 ~+150	

MOSFET ELECTRICAL CHARACTERISTICS

T$_a$=25 ℃ unless otherwise specified

Parameter	Symbol	Test condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V$_{(BR)DSS}$	V$_{GS}$ = 0V, I$_D$ =250µA	30			V
Gate-source threshold voltage	V$_{GS(th)}$	V$_{DS}$ =V$_{GS}$, I$_D$ =250µA	1		2.2	
Gate-body leakage	I$_{GSS}$	V$_{DS}$ =0V, V$_{GS}$ =±20V			±100	nA
Zero gate voltage drain current	I$_{DSS}$	V$_{DS}$ =30V, V$_{GS}$ =0V			1	µA
Drain-source on-state resistance[a]	R$_{DS(on)}$	V$_{GS}$ =10V, I$_D$ =3.2A		0.049	0.060	Ω
		V$_{GS}$ =4.5V, I$_D$ =2.8A		0.061	0.075	
Forward transconductance[a]	g$_{fs}$	V$_{DS}$ =4.5V, I$_D$ =2.5A	2.5			S
Dynamic[b]						
Total gate charge	Q$_g$	V$_{DS}$ =15V,V$_{GS}$ =10V,I$_D$ =3.4A		4.5	6.7	nC
				2.1	3.2	
Gate-source charge	Q$_{gs}$	V$_{DS}$ =15V,V$_{GS}$ =4.5V,I$_D$ =3.4A		0.85		
Gate-drain charge	Q$_{gd}$			0.65		
Gate resistance	R$_g$	f =1.0MHz	0.8	4.4	8.8	Ω
Input capacitance	C$_{iss}$			235		pF
Output capacitance	C$_{oss}$	V$_{DS}$ =15V,V$_{GS}$ =0V,f =1MHz		45		
Reverse transfer capacitance	C$_{rss}$			17		
Turn-on delay Time	t$_{d(on)}$	V$_{DD}$=15V, R$_L$=5.6Ω, I$_D$ ≈2.7A, V$_{GEN}$=4.5V,Rg=1Ω		12	20	ns
Rise time	t$_r$			50	75	
Turn-off delay time	t$_{d(off)}$			12	20	
Fall time	t$_f$			22	35	
Turn-on delay time	t$_{d(on)}$	V$_{DD}$=15V, R$_L$=5.6Ω, I$_D$ ≈2.7A, V$_{GEN}$=10V,Rg=1Ω		5	10	
Rise time	t$_r$			12	20	
Turn-off delay time	t$_{d(off)}$			10	15	
Fall time	t$_f$			5	10	
Drain-source body diode characteristics						
Continuous source-drain diode current	I$_S$	T$_C$=25℃			1.4	A
Pulse diode forward current	I$_{SM}$				15	A
Body diode voltage	V$_{SD}$	I$_S$=-2.7A,V$_{GS}$=0V		0.8	1.2	V

Notes :
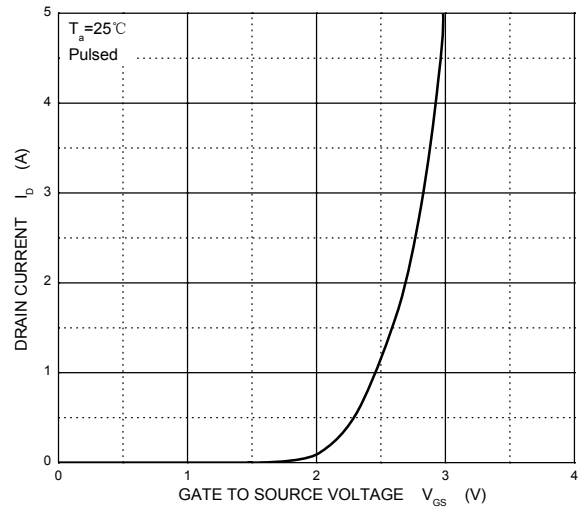
a. Pulse Test : Pulse width≤300µs, duty cycle ≤2%.

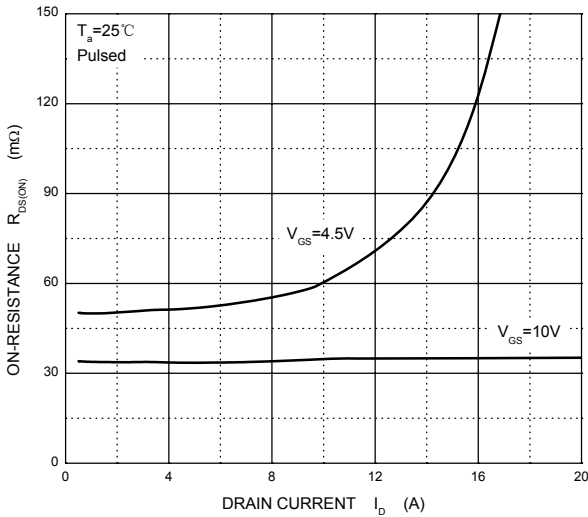b. Guaranteed by design, not subject to production testing.

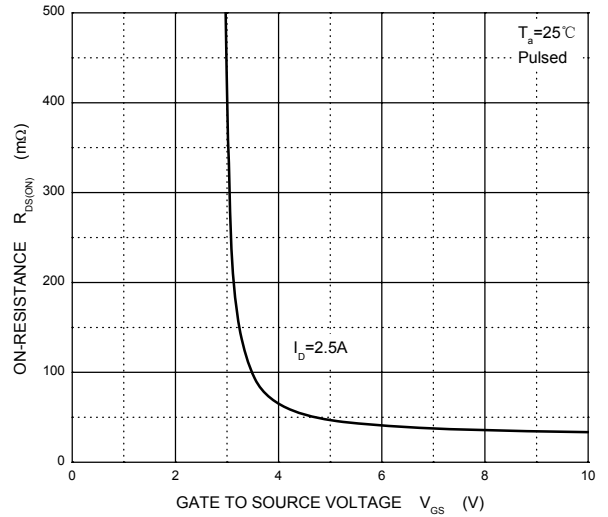# Typical Characteristics
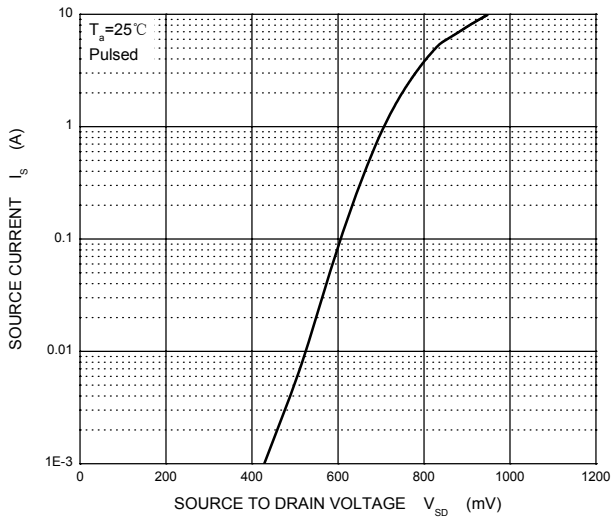
Output Characteristics
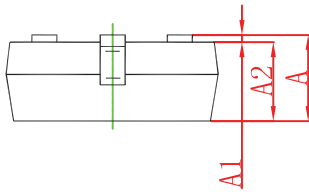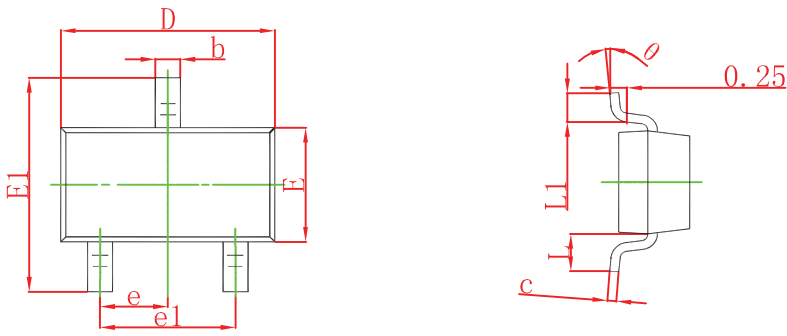

Transfer Characteristics

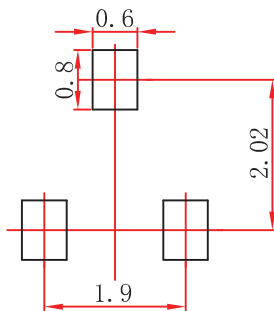$R_{DS(ON)}$ — I_D

$R_{DS(ON)}$ — V_{GS}

I_S — V_{SD}

SOT-23 Package Outline Dimensions

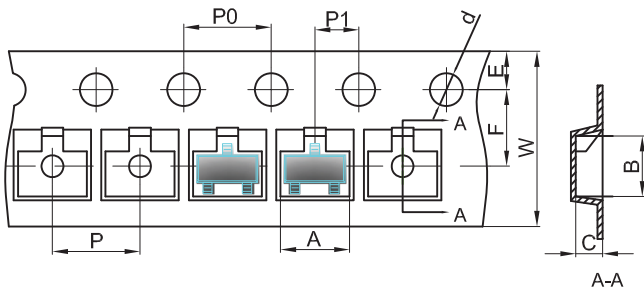| Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

SOT-23 Suggested Pad Layout

Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

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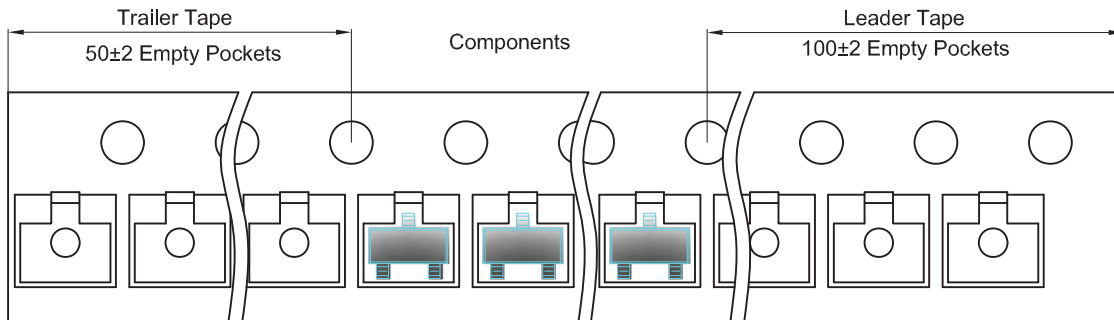

SOT-23 Embossed Carrier Tape
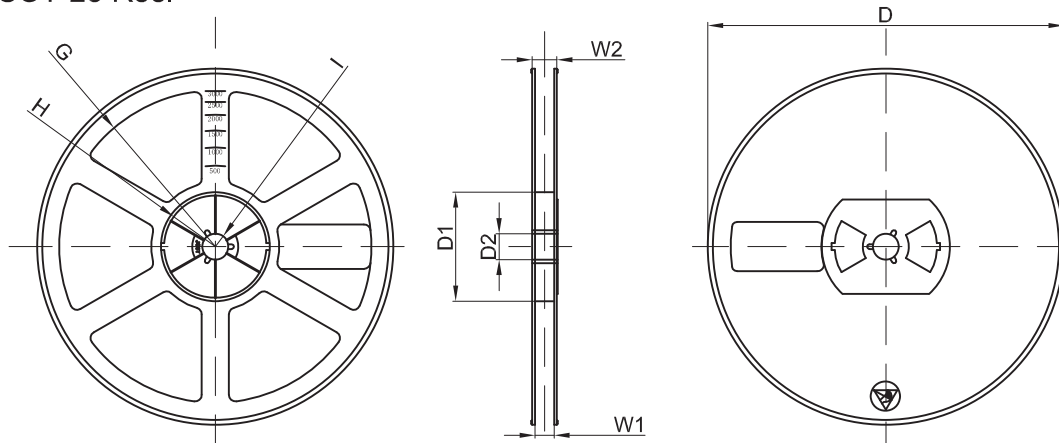

Packaging Description:
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

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
(Tolerance)	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

SOT-23 Tape Leader and Trailer

Trailer Tape
50±2 Empty Pockets

Components

Leader Tape
100±2 Empty Pockets

SOT-23 Reel

Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

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