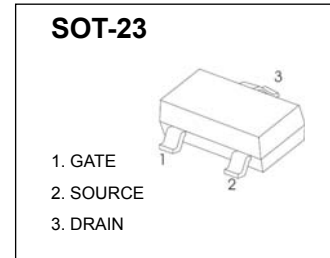




DONGGUAN NANJING ELECTRONICS LTD.,  
**SOT-23 Plastic-Encapsulate MOSFETS**

**NJ2307** P-Channel 30-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-30V	88mΩ@-10V	3.0A
	138mΩ@-4.5V	



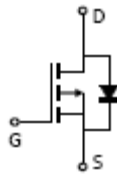
**FEATURE**

- TrenchFET Power MOSFET

**APPLICATION**

- Load Switch for Portable Devices

**Equivalent Circuit**



**Maximum ratings (  $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	±20	
Continuous Drain Current <sup>a,b</sup>	$I_D$	-3.0	A
Continuous Source-Drain Current <sup>a,b</sup>	$I_S$	-1.25	
Power Dissipation <sup>a,b</sup>	$P_D$	1.25	W
Thermal Resistance from Junction to Ambient ( $t \leq 5s$ )	$R_{\theta JA}$	100	$^{\circ}\text{C/W}$
Operating Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	

## MOSFET ELECTRICAL CHARACTERISTICS

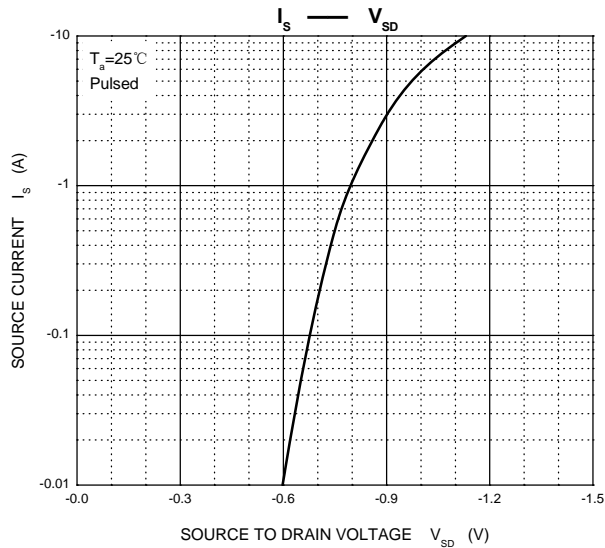
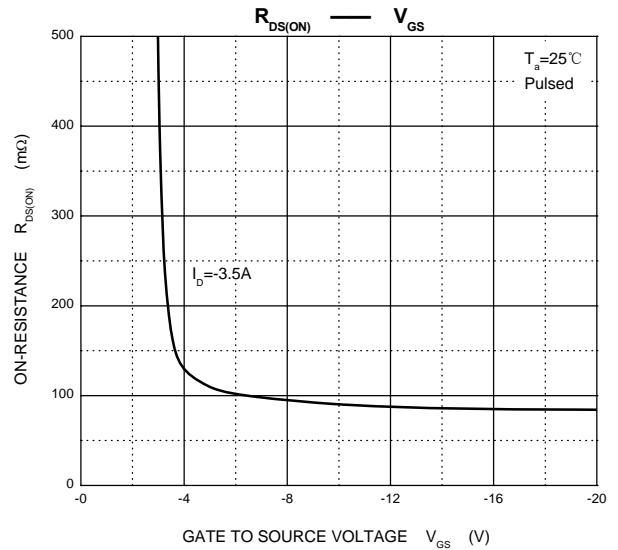
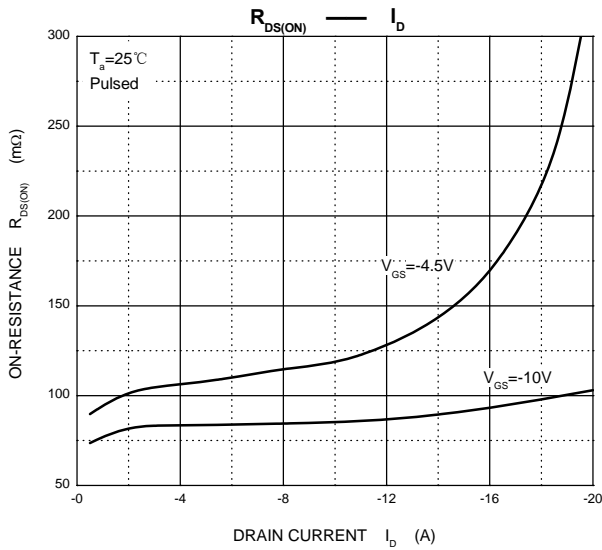
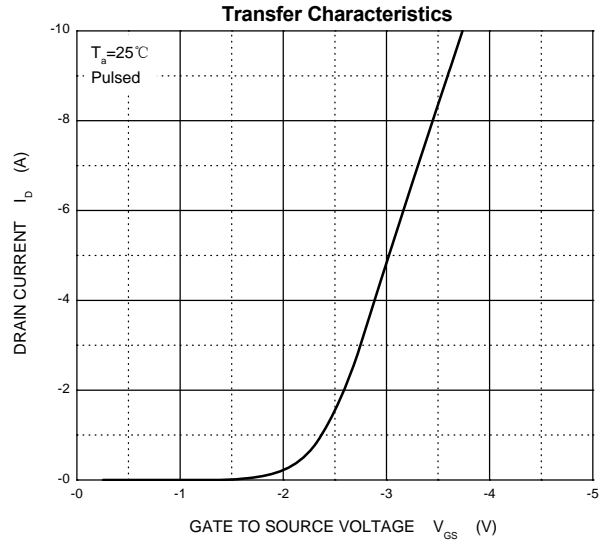
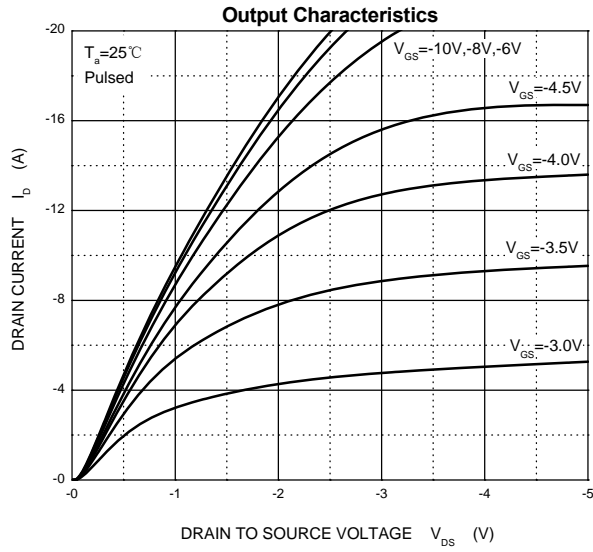
$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1		-3	
Gate-Source Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$			-1	$\mu A$
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^\circ C$			-10	
Drain-Source On-State Resistance <sup>c</sup>	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -2.5A$		0.103	0.138	$\Omega$
		$V_{GS} = -10V, I_D = -3.0A$		0.064	0.080	
Forward Transconductance <sup>c</sup>	$g_{fs}$	$V_{DS} = -10V, I_D = -3.5A$		7		S
<b>Dynamic<sup>d</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		340		$\mu F$
Output Capacitance	$C_{oss}$			67		
Reverse Transfer Capacitance	$C_{rss}$			51		
Total Gate Charge	$Q_g$	$V_{DS} = -15V, V_{GS} = -4.5V, I_D = -2.5A$		4.1	6.2	nC
Gate-Source Charge	$Q_{gs}$			1.3		
Gate-Drain Charge	$Q_{gd}$			1.8		
Gate Resistance	$R_g$	$f = 1MHz$		10		$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15V, R_L = 15\Omega, I_D = -1A, V_{GEN} = -4.5V, R_g = 1\Omega$		40	60	ns
Rise Time	$t_r$			40	60	
Turn-Off Delay Time	$t_{d(off)}$			20	40	
Fall Time	$t_f$			17	30	
<b>Drain-source Body diode characteristics</b>						
Body Diode Voltage	$V_{SD}$	$I_S = -0.75A, V_{GS} = 0$		-0.8	-1.2	V

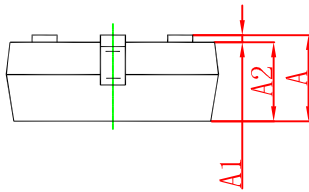
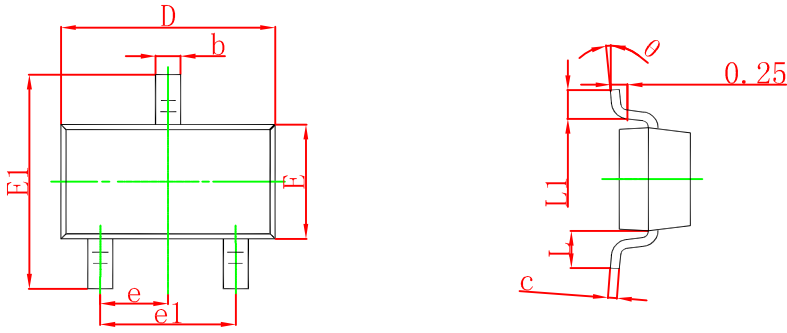
### Notes:

- $t = 5s$ .
- Surface mounted on 1" x 1" FR4 board.
- Pulse Test : Pulse Width < 300 $\mu s$ , Duty Cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production testing.

# Typical Characteristics

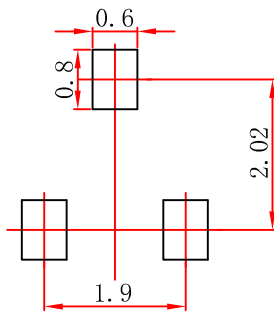


## SOT-23 Package Outline Dimensions



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
$\theta$	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout

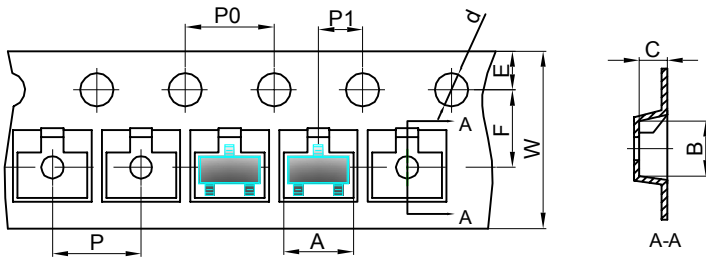


**Note:**

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

## SOT-23 Tape and reel

### SOT-23 Embossed Carrier Tape

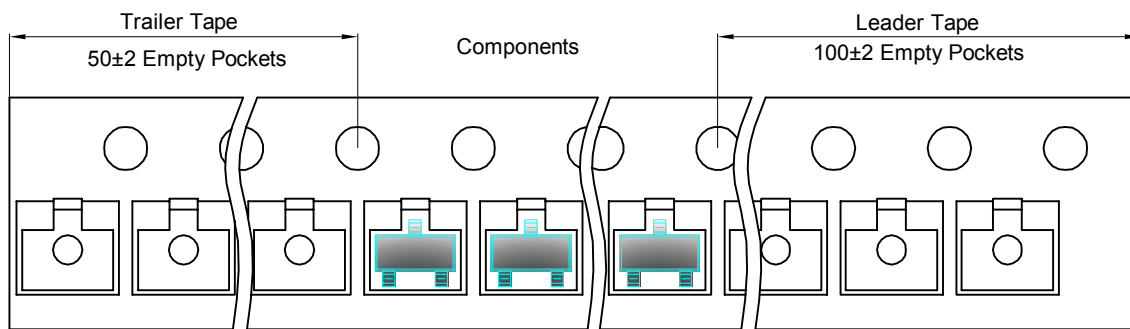


**Packaging Description:**

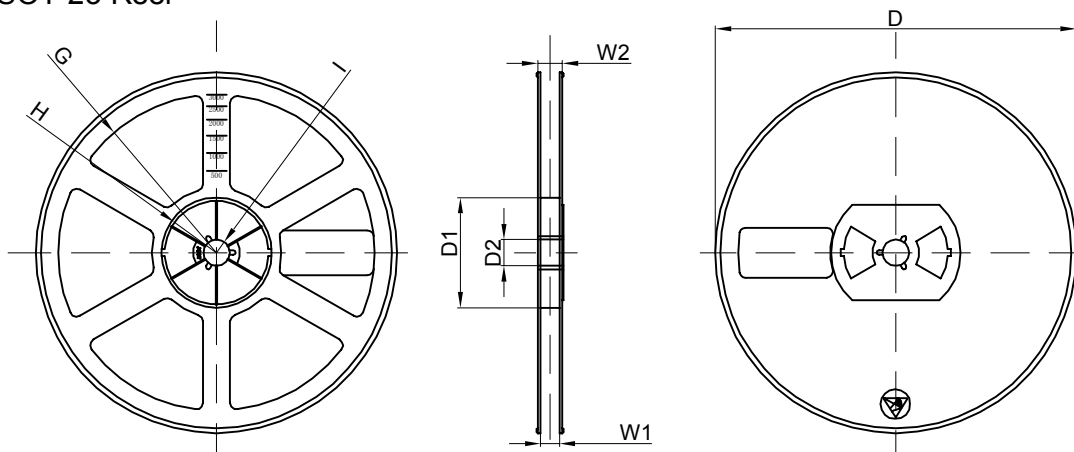
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in 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

### SOT-23 Tape Leader and Trailer



### 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

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	