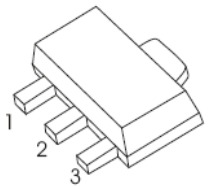
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

SOT-89-3L Plastic-Encapsulate MOSFETS

CJA03N10S N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
100 V	140 mΩ@ 10V	3A

SOT-89-3L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJA03N10S uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge .This device is suitable for use in a wide variety of applications.

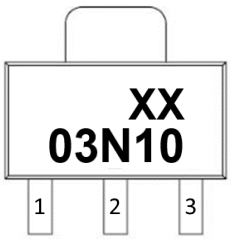
FEATURES

- Lead free product is acquired
- Special process technology for high ESD capability
- High density cell design for ultra low $R_{DS(on)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATION

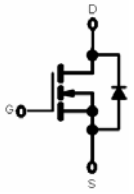
- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply

MARKING



XX: Data Code

Equivalent Circuit



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current **(note 1)**	I_{DM}	20	A
Power Dissipation	P_D	0.5	W
Thermal Resistance from Junction to Ambient **(note 2)**	$R_{\theta JA}$	250	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

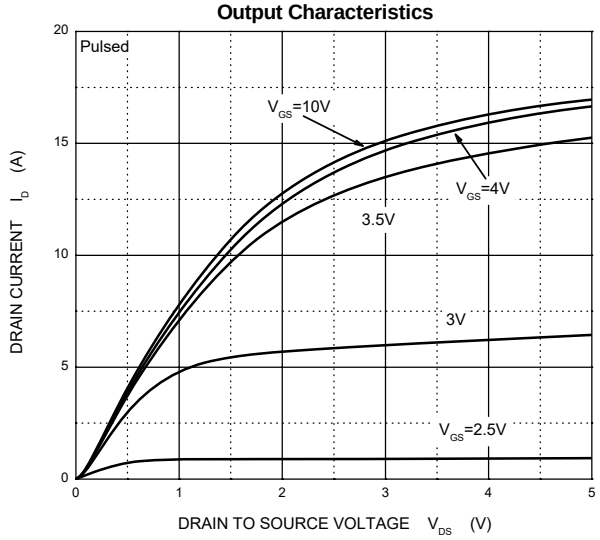
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage **(note 3)**	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.6	3	V
Drain-source on-resistance **(note 3)**	$R_{DS(on)}$	V_{GS} =10V, I_D =3A		113	140	mΩ
Forward transconductance **(note 3)**	g_{FS}	V_{DS} =5V, I_D =2.9A	3			S
Diode forward voltage **(note 3)**	V_{SD}	I_S=3A, V_{GS} = 0V			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		607		pF
Output capacitance	C_{oss}			38		pF
Reverse transfer capacitance	C_{rss}			20		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=30V, R_{GEN}=2.5Ω, I_D =2A, R_L=15Ω		9.7		ns
Turn-on rise time	t_r			6.5		ns
Turn-off delay time	$t_{d(off)}$			31		ns
Turn-off fall time	t_f			8		ns
Total gate charge	Q_g	V_{DS} =30V,V_{GS} =10V,I_D =3A		13.7		nC
Gate-source Charge	Q_{gs}			3.1		nC
Gate-drain Charge	Q_{gd}			4.5		nC

Notes :

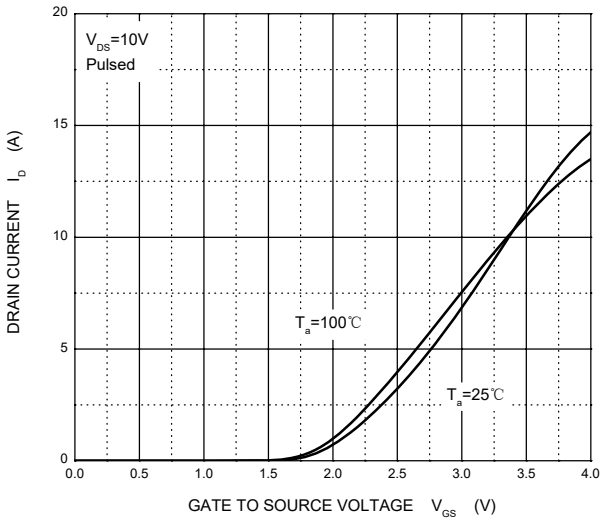
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to producting.

Typical Characteristics

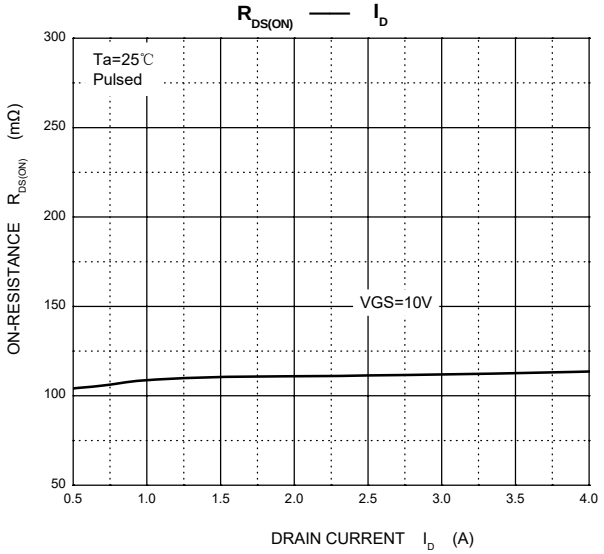
Output Characteristics



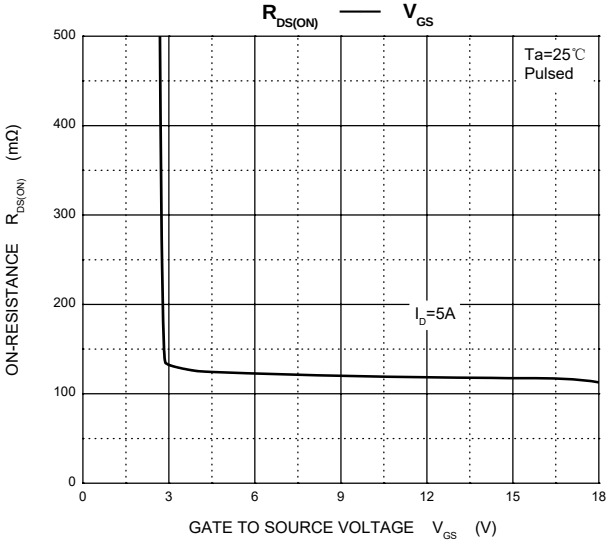
Transfer Characteristics



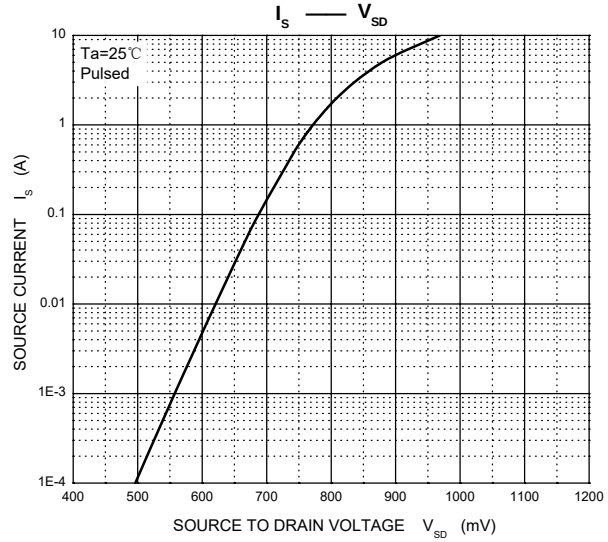
$R_{DS(ON)}$ — I_D



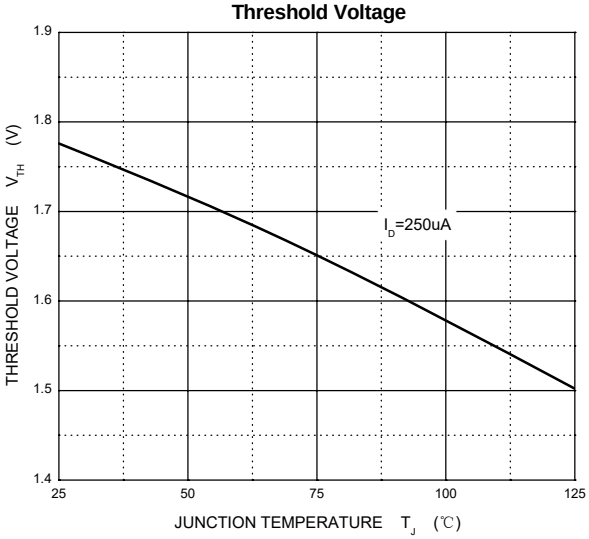
$R_{DS(ON)}$ — V_{GS}



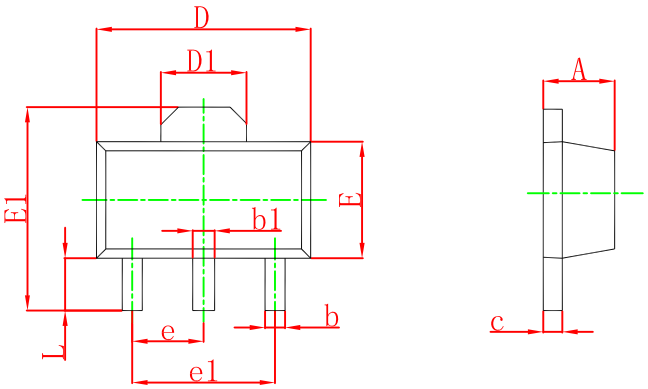
I_S — V_{SD}



Threshold Voltage

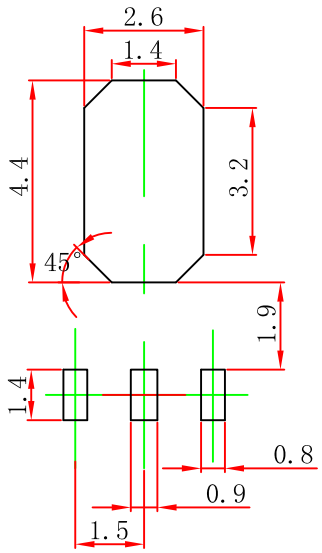


SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

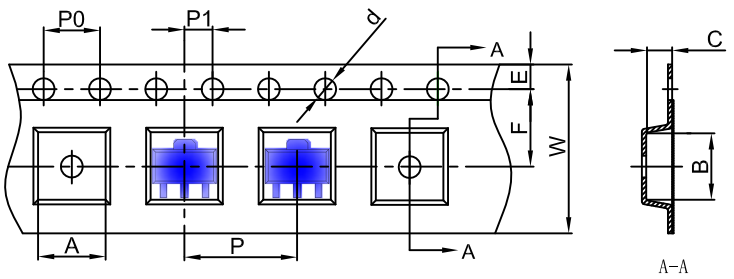
SOT-89-3L Suggested Pad Layout



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

SOT-89-3L Tape and Reel

SOT-89-3L Embossed Carrier Tape

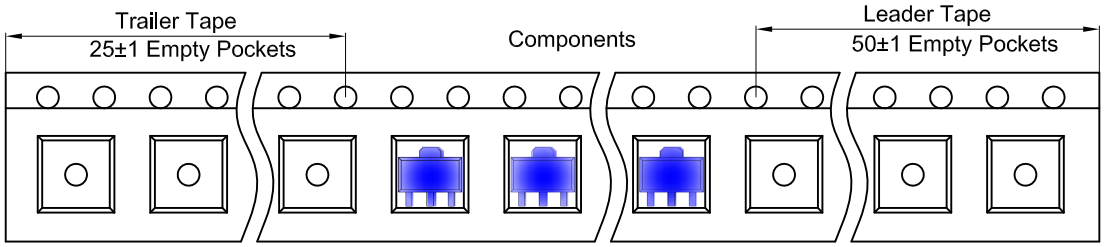


Packaging Description:

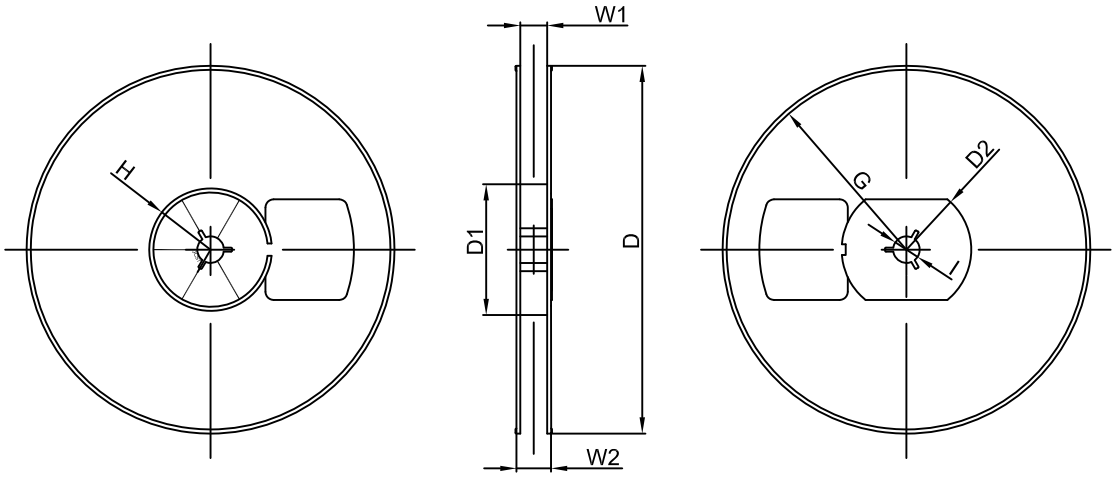
SOT-89-3L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 1,000 units per 7" or 18.0 cm 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-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOT-89-3L Tape Leader and Trailer



SOT-89-3L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
1000 pcs	7 inch	10,000 pcs	203×203×195	40,000 pcs	438×438×220	

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