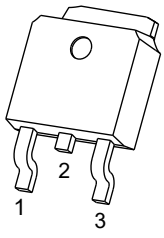
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

TO-252-2L Plastic-Encapsulate MOSFETS

CJU50SN10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
100V	16.5mΩ@10V	50A

TO-252-2L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJU50SN10 uses shielded gate trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications

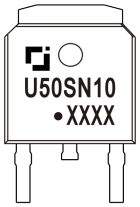
FEATURES

- High Power and current handing capability
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Lead free product is acquired
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATIONS

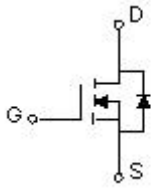
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply
- Power management

MARKING



U50SN10= Device code
Solid dot = Green molding compound device, if none, the normal device
XXXX=Code

EQUIVALENT CIRCUIT



ABSOLUTE 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	
Continuous Drain Current	I_D	50	A
Pulsed Drain Current(1)	I_{DM}	170	
Maximum Power Dissipation(4)	P_D	50	W
Avalanche energy*	E_{AS}	80	mJ
Thermal Resistance from Junction to Case	$R_{\theta JC}$	2.5	℃/W
Thermal Resistance from Junction to Ambient(3)	$R_{\theta JA}$	62	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	

* EAS test condition V_{DD}=50V, RG=25 Ω, L=0.3 mH, starting Tj=25 ℃.

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

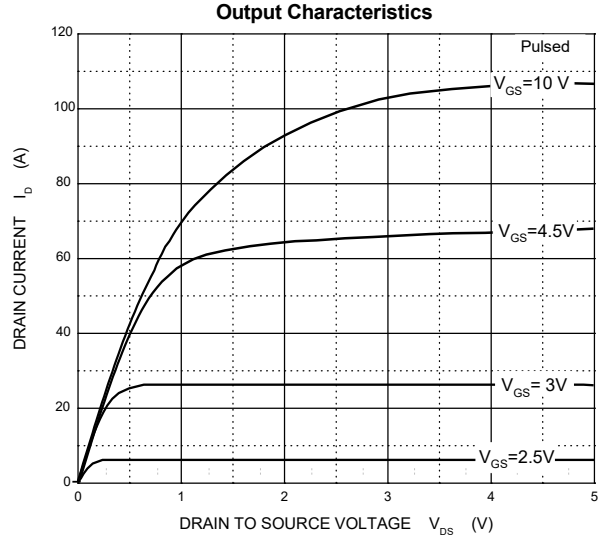
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage(1)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.7	2.5	V
Drain-source on-resistance(1)	$R_{DS(on)}$	V_{GS} =10V, I_D =10A		16.5	22	mΩ
Forward tranconductance(1)	g_{FS}	V_{DS} =5.0V, I_D =20A		51		S
Dynamic characteristics(2)						
Total gate charge	Q_g	V_{DS} =50V,V_{GS} =10V,I_D =5A		15.7		nC
Gate-source charge	Q_{gs}			2.6		
Gate-drain charge	Q_{gd}			4.0		
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V,f =100kHz		975.3		pF
Output Capacitance	C_{oss}			175		
Reverse Transfer Capacitance	C_{rss}			9.4		
SWITCHING PARAMETERS(2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=50V, R_G=10Ω, I_D=5A		16.5		ns
Turn-on rise time	t_r			3.7		
Turn-off delay time	$t_{d(off)}$			64.7		
Turn-off fall time	t_f			44		
Source-Drain Diode characteristics(1)						
Body diode voltage	V_{SD}	I_S=20A,V_{GS}=0V			1.3	V

Notes:

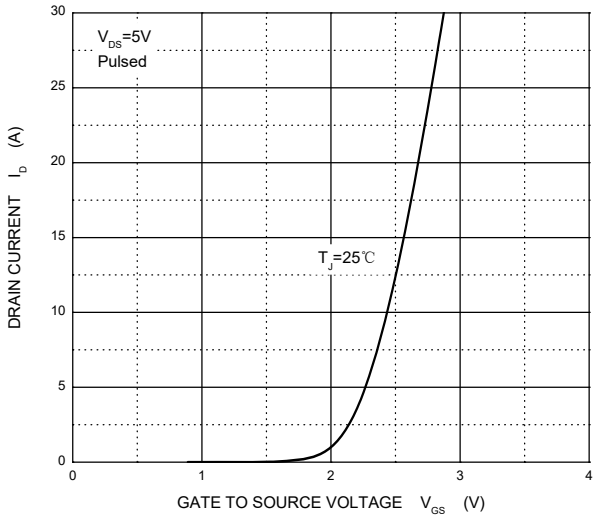
1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
2. Guaranteed by design, not subject to production testing.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 ℃.
4. Pd is based on max. junction temperature, using junction-case thermal resistance.

Typical Characteristics

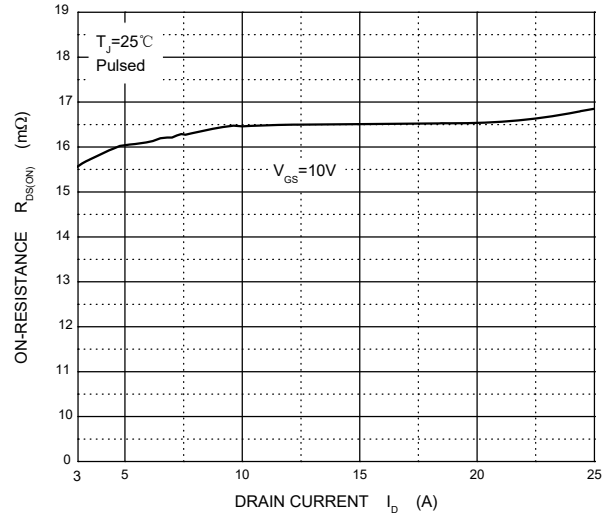
Output Characteristics



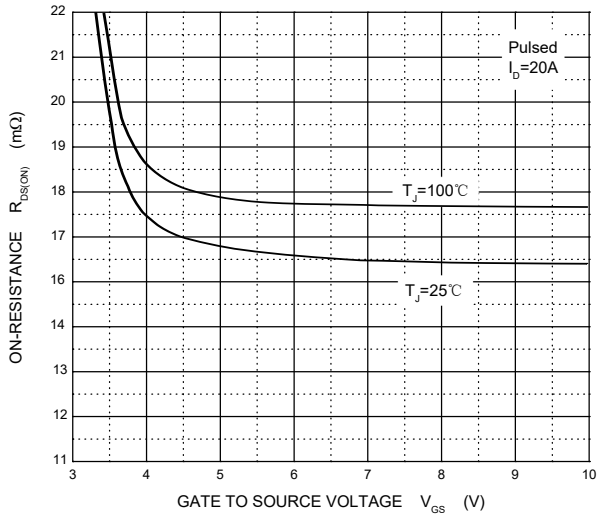
Transfer Characteristics



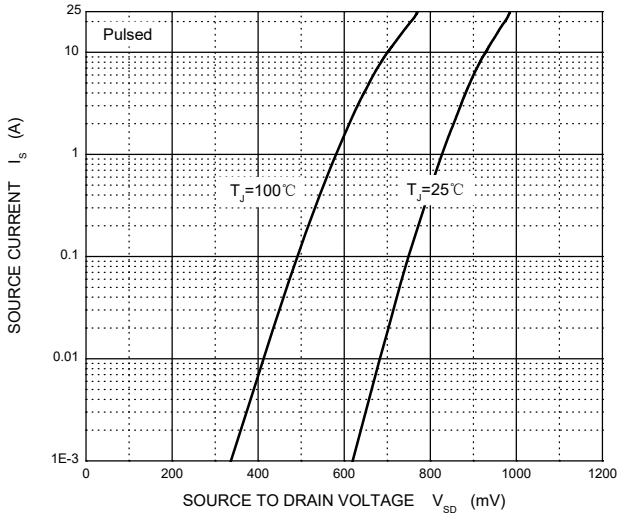
$R_{DS(ON)}$ —— I_D



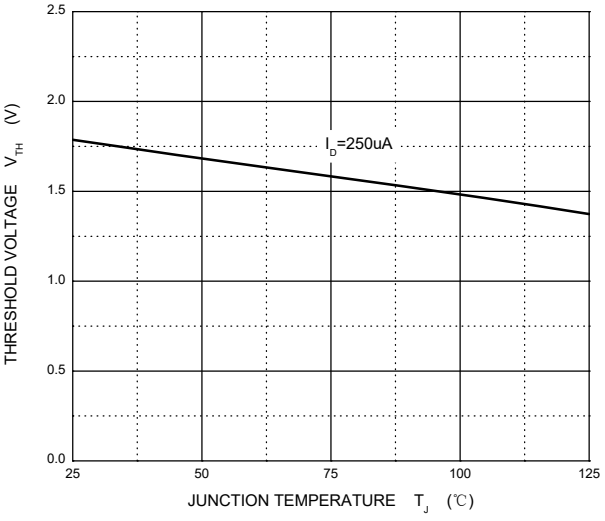
$R_{DS(ON)}$—— V_{GS}



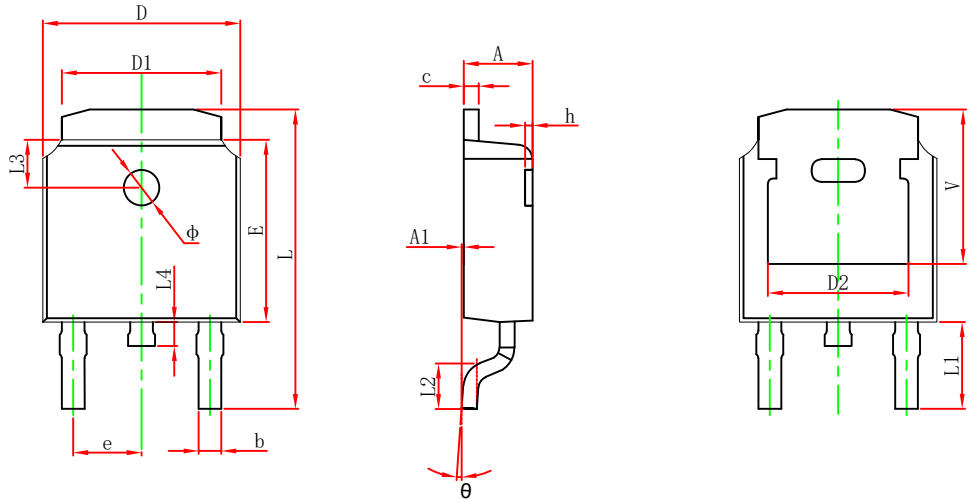
I_S —— V_{SD}



Threshold Voltage

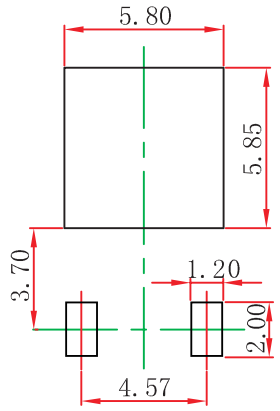


TO-252-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

TO-252-2L Suggested Pad Layout



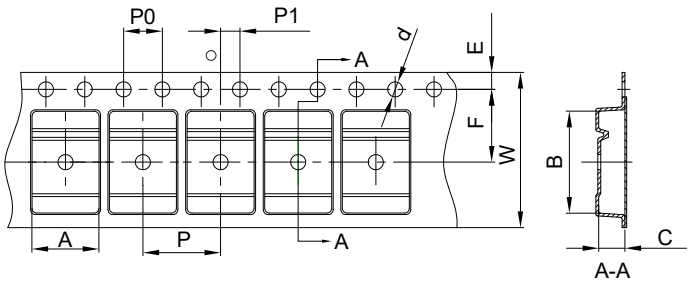
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications,enhancements,improvements,corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

TO-252-2L Tape and Reel

TO-252-2L Embossed Carrier Tabe

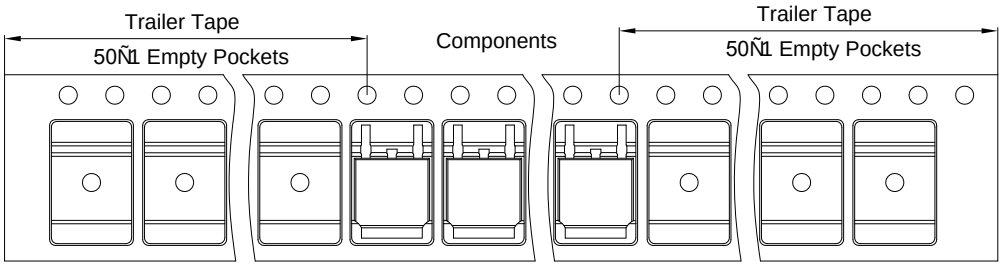


Packaging Description:

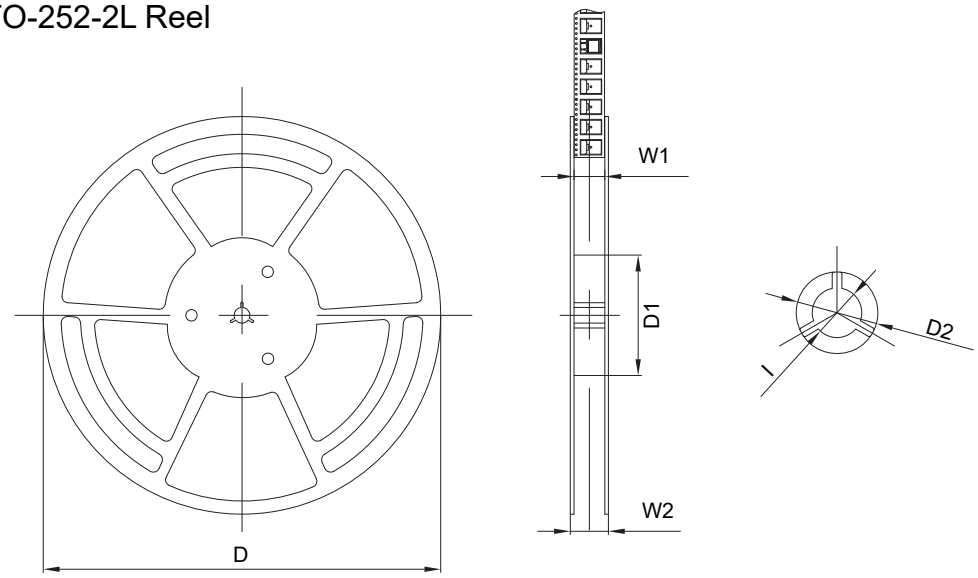
TO-252-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2500 units per 13″ or 33.0 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
TO-252	6.90	10.50	2.70	Φ1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252-2L Tape Leader and Trailer



TO-252-2L Reel



Dimensions are in millimeter						
Reel	D	D1	D2	W1	W2	I
13" Dia	330.00	100.00	Φ21.00	16.40	21.40	Φ13.00

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
2500 pcs	13 inch	5000 pcs	360×360×65	25000 pcs	378×358×382