SZCJ

Shenzhen Changji Semiconductor Co., LTD.

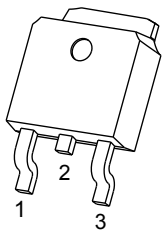
JSCJ

TO-252-2L Plastic-Encapsulate MOSFETS

CJU30N10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
100V	24mΩ@10V	30A

TO-252-2L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode fast recovery time. Desighed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

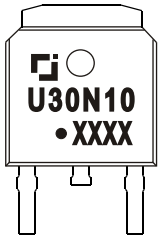
FEATURES

- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Special process technology for high ESD capability
- Excellent package for good heat dissipation

APPLICATIONS

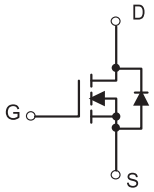
- Hard switched and high frequency circuits
- Uninterruptible power supply
- Power switching application

MARKING



U30N10 = 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}	Ñ20	V
Continuous Drain Current	I_D ①	30	A
Pulsed Drain Current	I_{DM} ②	120	A
Single Pulsed Avalanche Energy	E_{AS} ③	156	mJ
Maximum Power Dissipation	P_D ①	85	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	100	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	1.47	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off 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} =80V, V_{GS} =0V	T_J =25℃			1	μA
			T_J =125℃			100	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V				±100	nA
On characteristics ④							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA		1.3	2.0	2.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =15A			24	31	mΩ
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =10A			15		S
Dynamic characteristics ④⑤							
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V, f =1MHz			2465	4930	pF
Output capacitance	C_{oss}				118	236	
Reverse transfer capacitance	C_{rss}				108	216	
Gate resistance	R_g	f =1MHz			2.3		Ω
Switching characteristics ④⑤							
Total gate charge	Q_g	VDS=50V,V_{GS}=10V, I_D=10A			62	124	nC
Gate-source charge	Q_{gs}				6.2	12	
Gate-drain charge	Q_{gd}				15	30	
Turn-on delay time	$t_{d(on)}$	V_{DS}=30V, V_{GS}=10V,ID=2A, R_G=3Ω , R_L=5Ω			7		ns
Turn-on rise time	t_r				7		
Turn-off delay time	$t_{d(off)}$				29		
Turn-off fall time	t_f				7		
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=40A				1.2	V
Continuous drain-source diode forward current	I_S ①					30	A
Pulsed drain-source diode forward current	I_{SM} ②					120	A

Notes:

1.T_C=25℃ Limited only by maximum temperature allowed.

2.P_W≤10μs, Duty cycle≤1%.

3.EAS condition: V_{DD}=50V,V_{GS}=10V, L=0.5mH, R_g=25Ω Starting T_J = 25°℃.

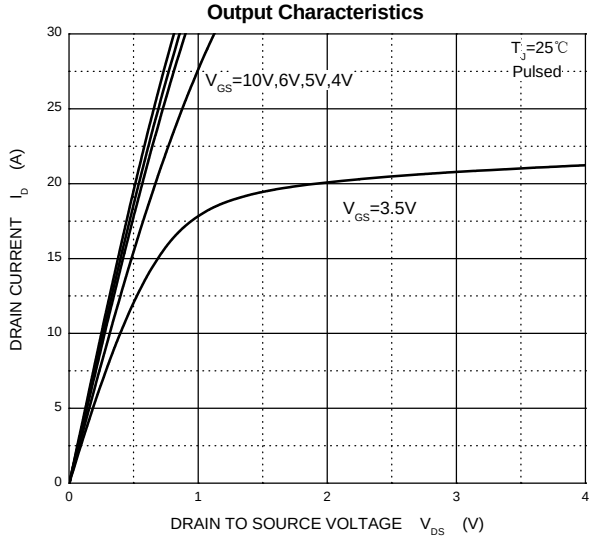
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

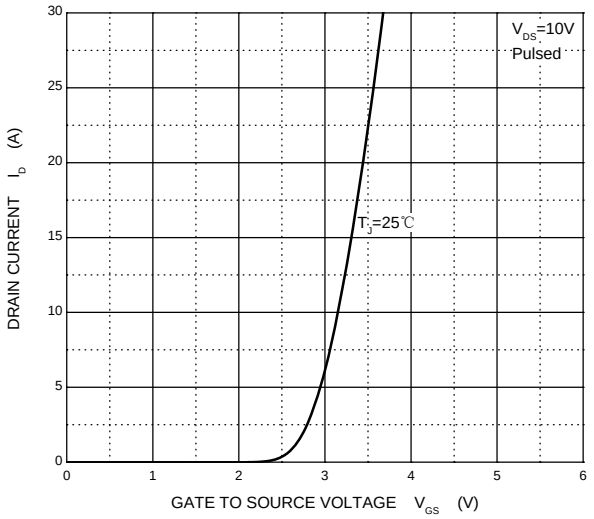
6.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃.

Typical Characteristics

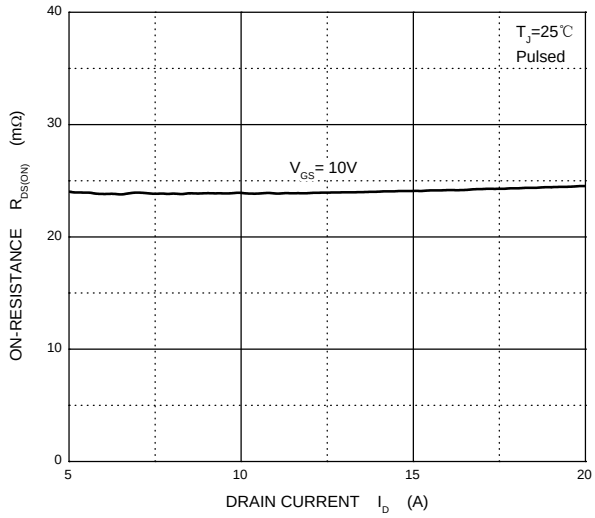
Output Characteristics



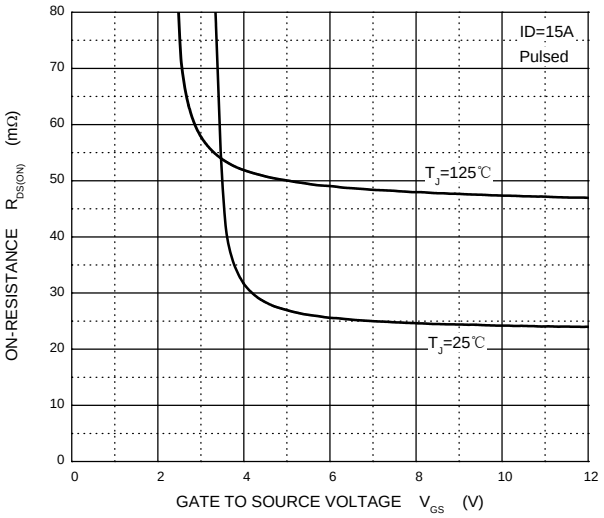
Transfer Characteristics



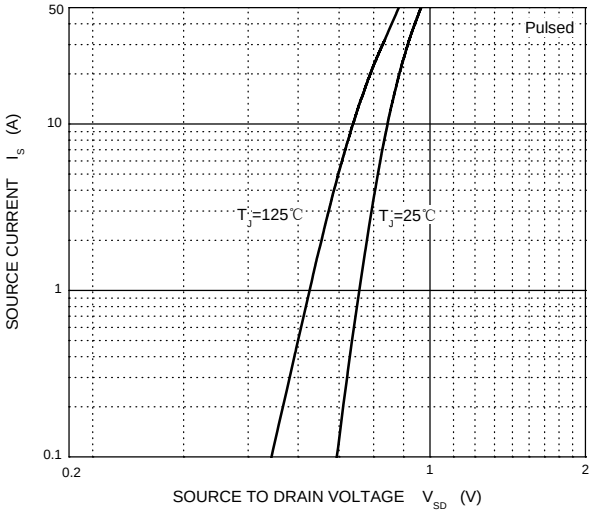
$R_{DS(ON)}$ —— I_D



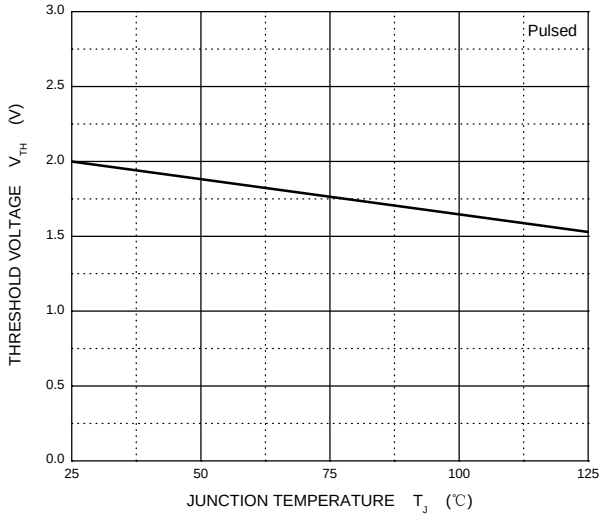
$R_{DS(ON)}$—— V_{GS}



I_S —— V_{SD}

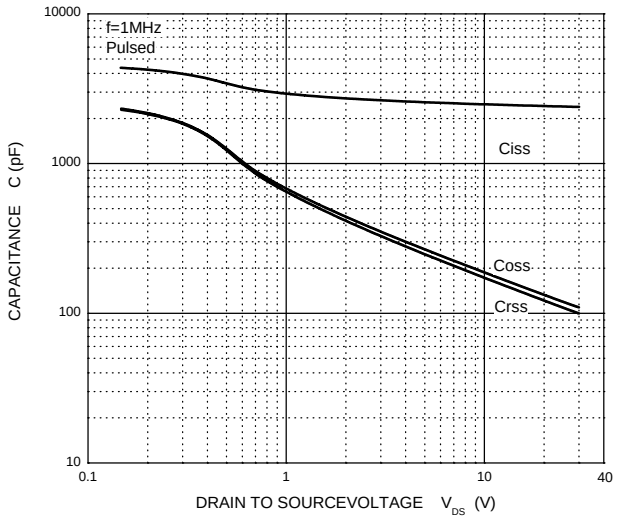


Threshold Voltage

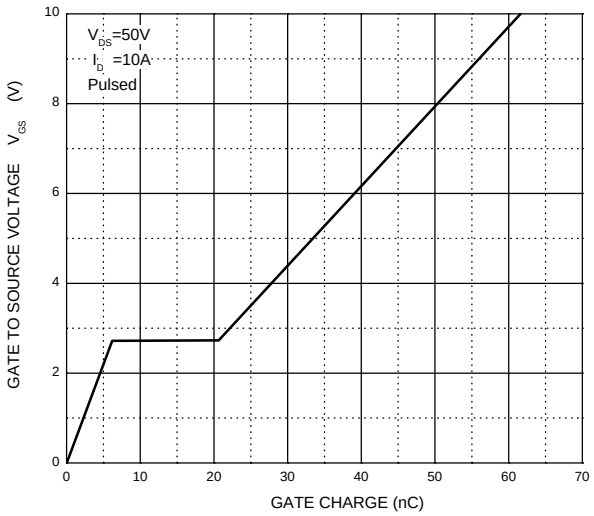


Typical Characteristics

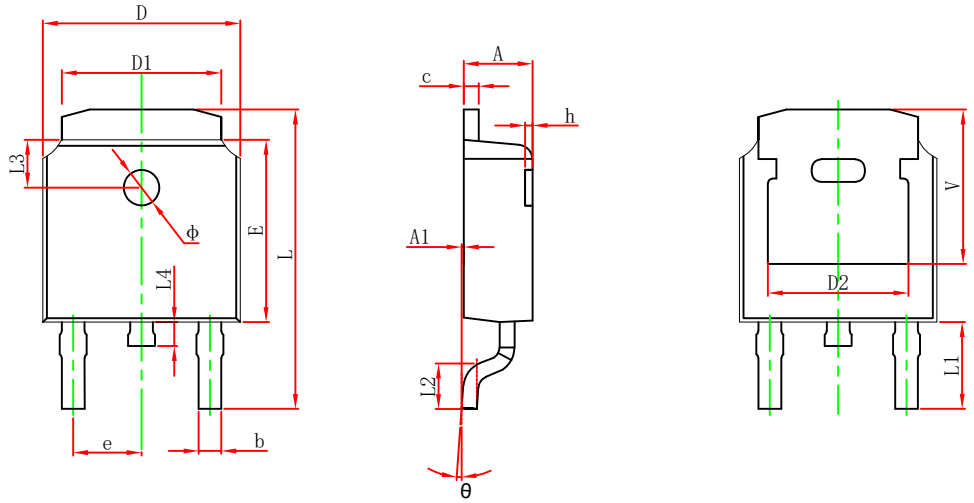
Capacitances



Gate Charge

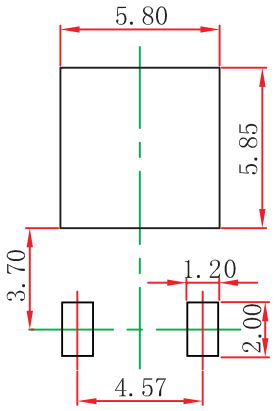


TO-252-2L Package Outline Dimensions



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



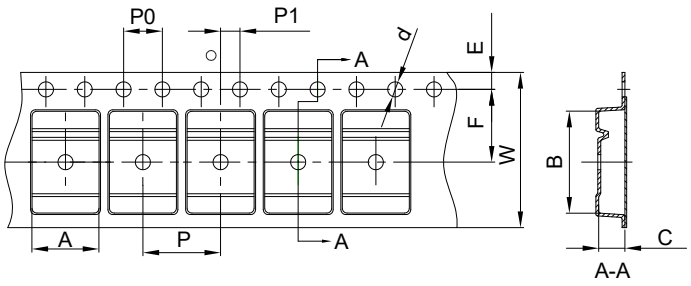
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

SZCJ reserves the right to make modifications,enhan nts,improvements,corrections or other es without further notice to any product herein. SZCJ does not assume any liability arising out of the application or use of any product described h

TO-252-2L Tape and Reel

TO-252-2L Embossed Carrier Tabe

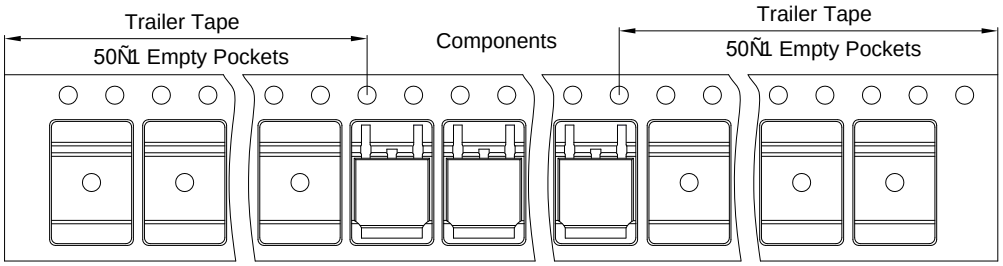


Packaging Description:

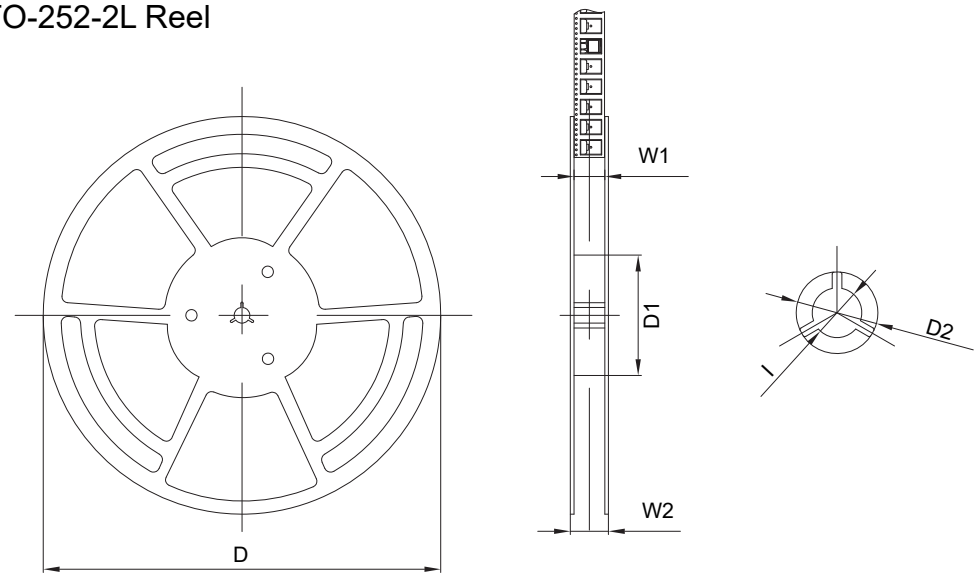
TO-252-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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