SZCJ

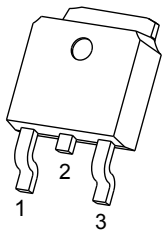
Shenzhen Changji Semiconductor Co., LTD.

TO-252-2L Plastic-Encapsulate MOSFETS

CJU55N02 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
20 V	5.8mΩ@10V	55 A
	7.0mΩ@4.5V	

TO-252-2L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The CJU55N02 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications

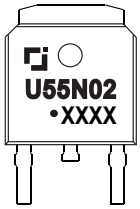
FEATURE

- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

APPLICATION

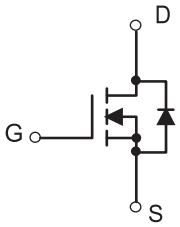
- Power switching application

MARKING



U55N02 = 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}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D ①	55	A
Pulsed Drain Current	I_{DM} ②	200	A
Single Pulsed Avalanche Energy	E_{AS} ③	80	mJ
Maximum Power Dissipation	P_D ①	55	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	100	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	2.27	℃/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	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =16V, V_{GS} =0V, T_J =25℃			1.0	μA
		V_{DS} =16V, V_{GS} =0V, T_J =125℃			100	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±12V			±100	nA
On characteristics ④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.4	0.7	1.2	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		5.8	8	mΩ
		V_{GS} =4.5V, I_D =20A		7.0	10	mΩ
Forward transconductance	g_{FS}	V_{DS} =10V, I_D =20A		24		S
Dynamic characteristics ④⑤						
Input capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V, f =100KHz		1145	2290	pF
Output capacitance	C_{oss}			189	378	
Reverse transfer capacitance	C_{rss}			181	362	
Gate resistance	R_g	f =1MHz		3.9		Ω
Switching characteristics ④⑤						
Total gate charge	Q_g	V_{GS}=10V, V_{DS}=25V, I_D=14A		35	70	nC
Gate-source charge	Q_{gs}			1.0	2.0	
Gate-drain charge	Q_{gd}			8.3	17	
Turn-on delay time	$t_{d(on)}$	V_{DS}=15V, V_{GS}=10V,I_D=14A, R_G=3Ω , R_L=0.75Ω ,		10		ns
Turn-on rise time	t_r			34		
Turn-off delay time	$t_{d(off)}$			41		
Turn-off fall time	t_f			11		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=20A			1.2	V
Continuous drain-source diode forward current	I_S ①				55	A
Pulsed drain-source diode forward current	I_{SM} ②				200	A

Notes:

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

2.P_W≤10μs, Duty cycle≤1%.

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

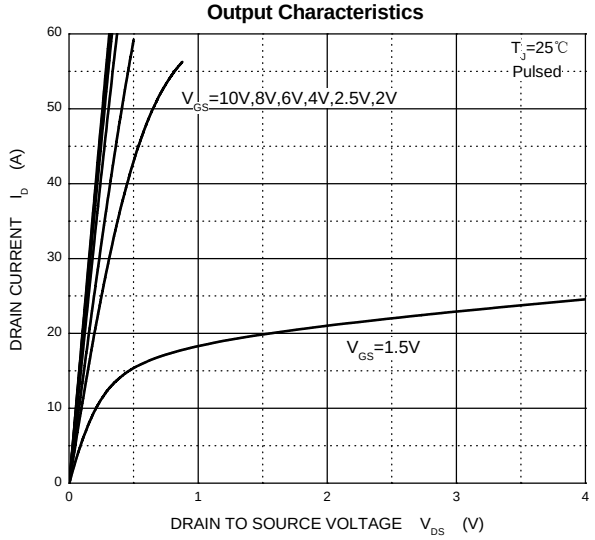
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

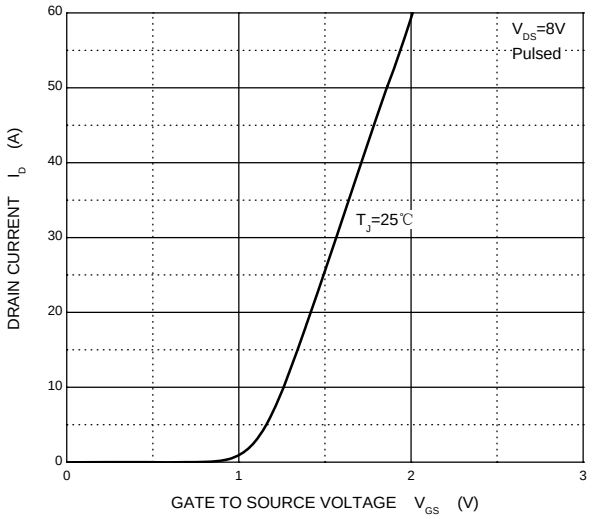
6.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃.

Typical Characteristics

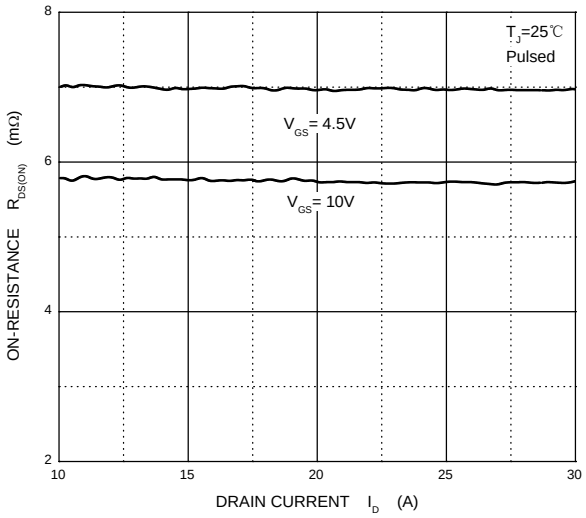
Output Characteristics



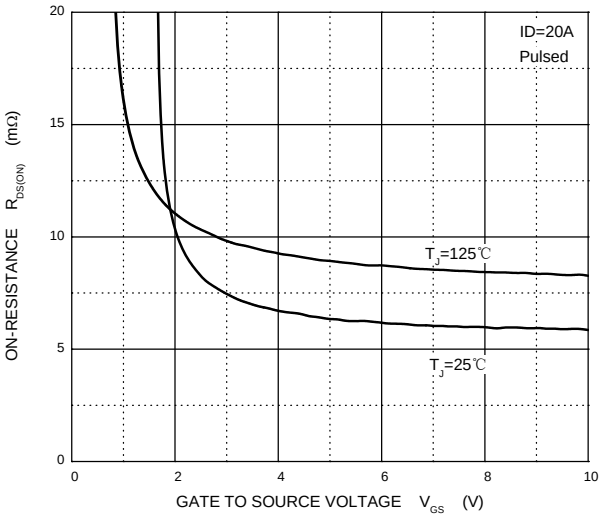
Transfer Characteristics



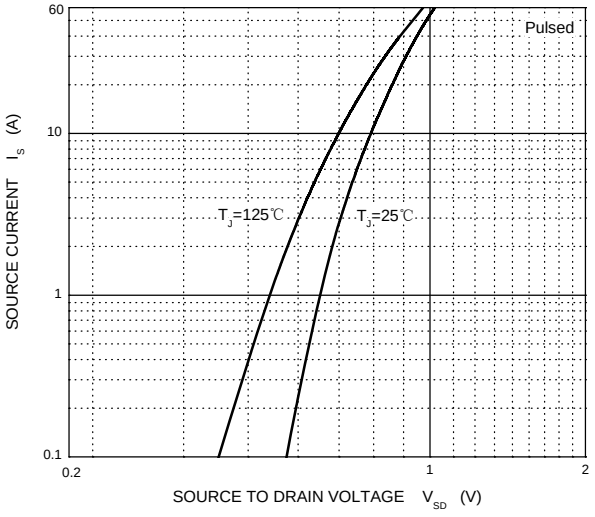
$R_{DS(ON)}$ —— I_D



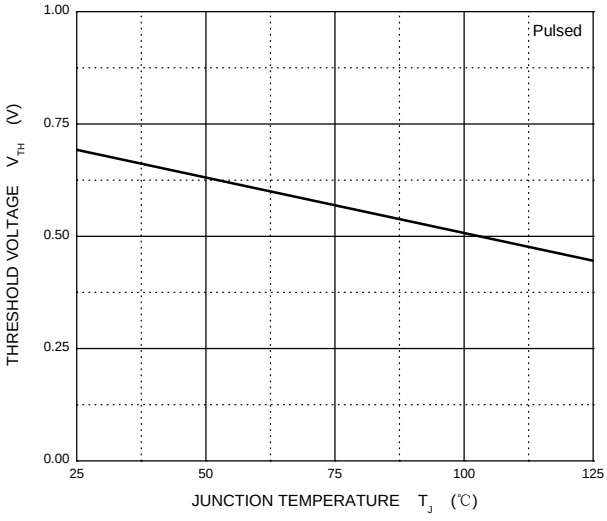
$R_{DS(ON)}$—— V_{GS}



I_S —— V_{SD}

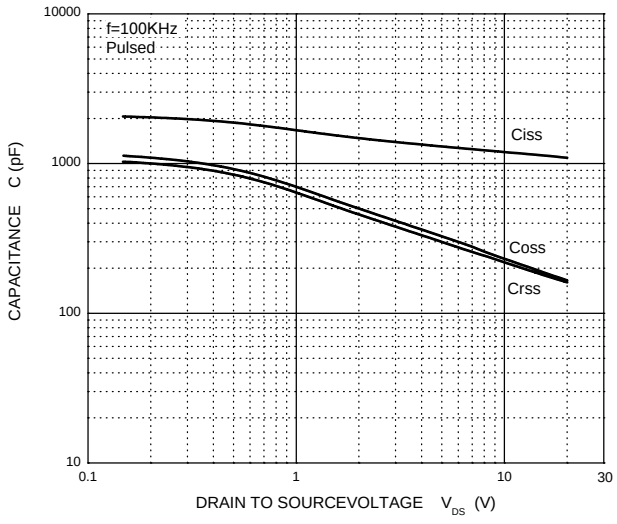


Threshold Voltage

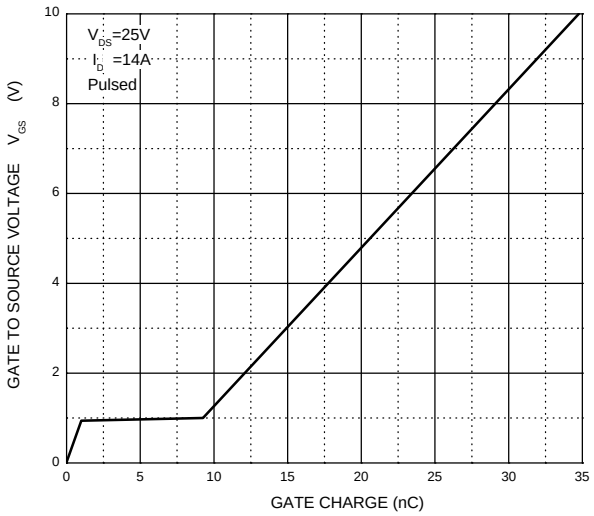


Typical Characteristics

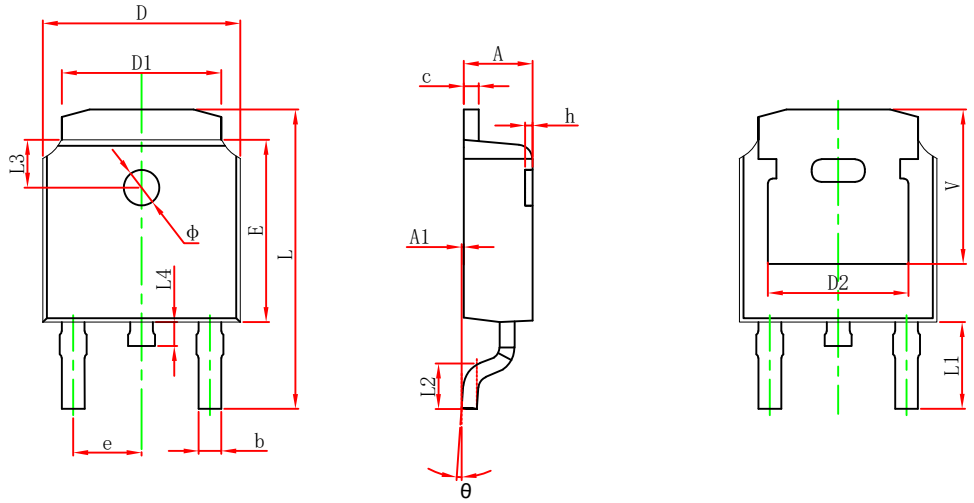
Capacitances



Gate Charge

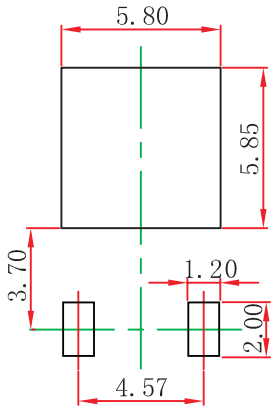


TO-252-2L Package Outline Dimensions



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



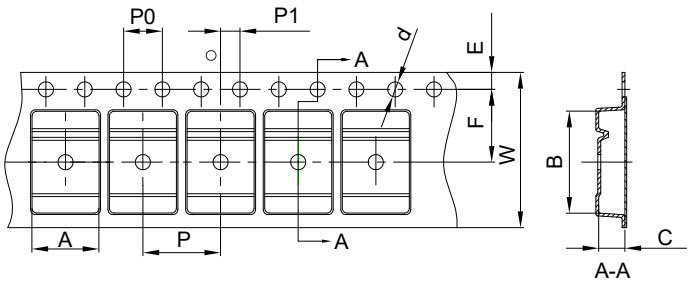
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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

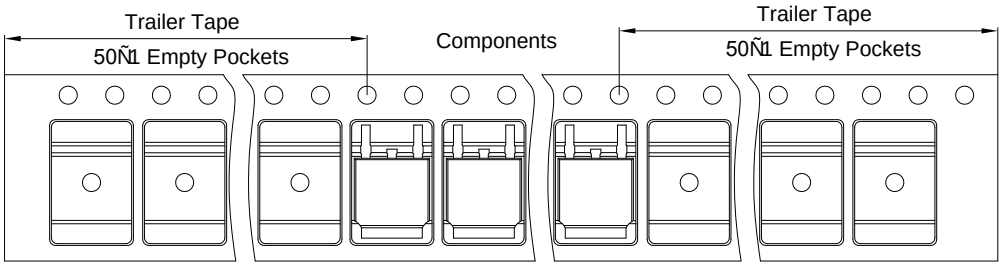


Packaging Description:

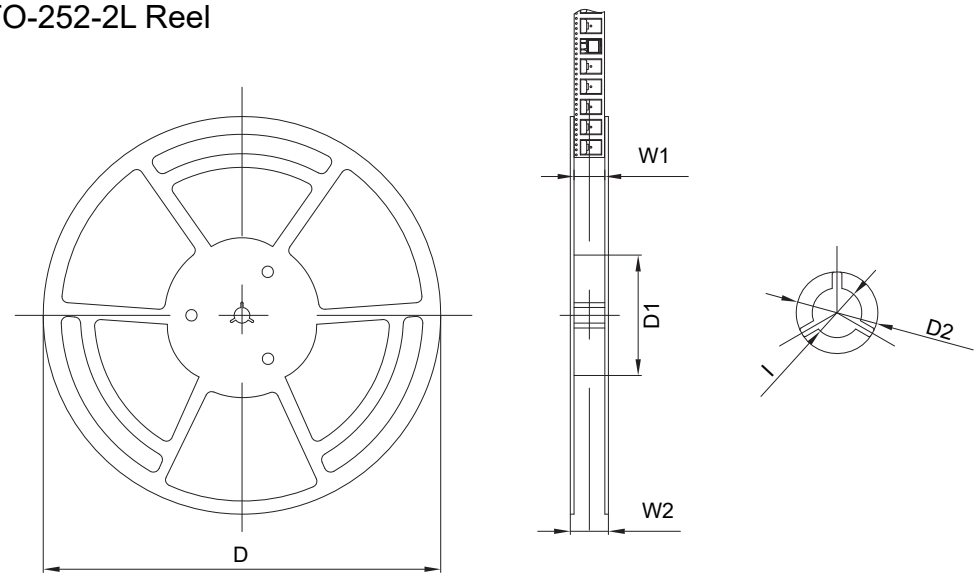
TO-252-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts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