JSCJ

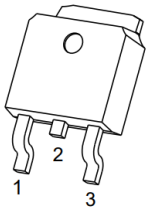
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

AD-CJU04N65 Plastic-Encapsulated MOSFET

AD-CJU04N65 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$, MAX	I_D
650V	3.0Ω @ 10V	4A

TO-252-2L



1. GATE
2. DRAIN
3. SOURCE

DESCRIPTION

The AD-CJU04N65 is an N-channel mode power MOSFET using advanced technology to provide customers with planar stripe. This technology specializes in allowing a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode. The AD-CJU04N65 is universally applied in high efficiency switch mode power supply.

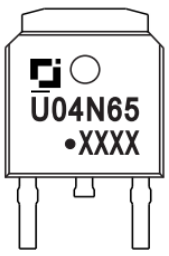
FEATURES

- High switching speed
- 100% avalanche tested
- Excellent package for good heat dissipation
- AEC-Q101 qualified

APPLICATIONS

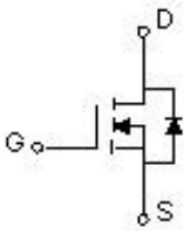
- Power switching application
- DC/DC converters

MARKING



Ū04N65 = Part No.
XXXX = Date code

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	650	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current	I_D 1)	4	A
Pulsed drain current	I_{DM} 2)	16	A
Maximum power dissipation	P_D 1)	48	W
Single pulsed avalanche energy	E_{AS} 3)	280	mJ
Thermal resistance from junction to case	$R_{\theta JC}$ 1)	2.6	°C/W
Thermal resistance from junction to ambient	$R_{\theta JA}$ 4)	100	°C/W
Operating junction and storage temperature range	T_j, T_{stg}	-55 ~ 150	°C

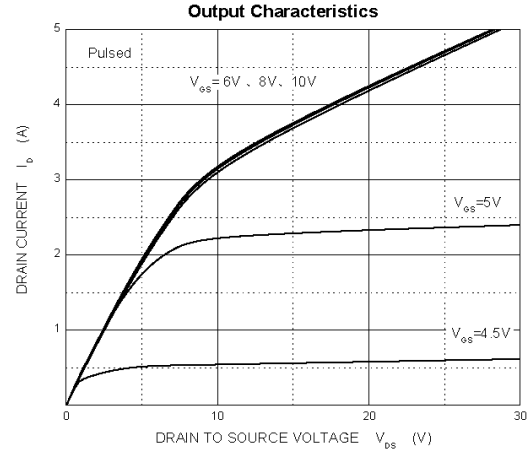
ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	650	-	-	V
Drain-source diode forward voltage	V_{SD}	V_{GS} = 0V, I_S = 4.0A	-	-	1.5	
Zero gate voltage drain current	I_{DSS}	V_{DS} = 600V, V_{GS} = 0V	-	-	25	μA
Gate-body leakage current	I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage 5)	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	-	4	V
Drain-source on-state resistance 5)	$R_{DS(on)}$	V_{GS} = 10V, I_D = 2A	-	2.3	3	Ω
Dynamic characteristics 5) 6)						
Total gate charge	Q_g	V_{DS} = 480V, V_{GS} =10V, I_D = 4A	-	5	10	nC
Gate-source charge	Q_{gs}		-	2.7	-	
Gate-drain charge	Q_{gd}		-	2	-	
Input capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz	-	-	760	pF
Output capacitance	C_{oss}		-	-	180	
Reverse transfer capacitance	C_{rss}		-	-	20	
Switching parameters 5) 6)						
Turn-on delay time	$t_{d(on)}$	V_{DD} = 300V, V_{GS} = 10V, R_L = 9.1Ω, I_D = 4.0A	-	-	20	ns
Turn-on rise time	t_r		-	-	10	
Turn-off delay time	$t_{d(off)}$		-	-	40	
Turn-off fall time	t_f		-	-	20	

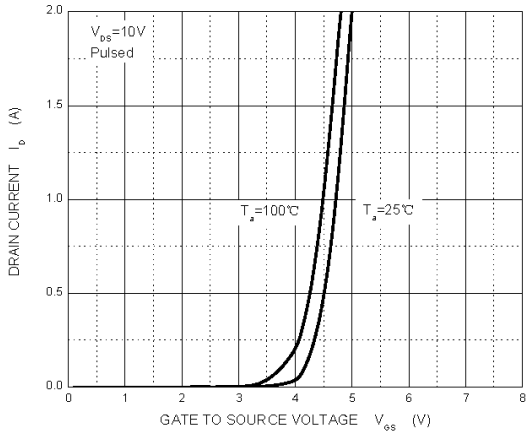
1) Maximum allowed temperature T_j = 25°C.
2) Pulse width ≤ 10μs, duty cycle ≤ 1%.
3) Test condition: V_{DD} = 50V, V_{GS} = 10V, L = 10mH, R_G = 25Ω, starting at T_j = 25°C.
4) Measured with the device mounted on 1 $inch^2$ FR-4 board with 2oz. copper, in a still air environment with T_a = 25℃.
5) Pulse test: Pulse width ≤ 300μs, duty cycle ≤ 2%.
6) Guaranteed by design, not subject to production.

Typical Characteristics

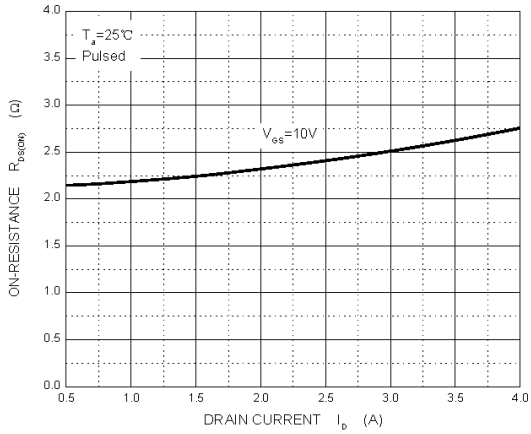
Output Characteristics



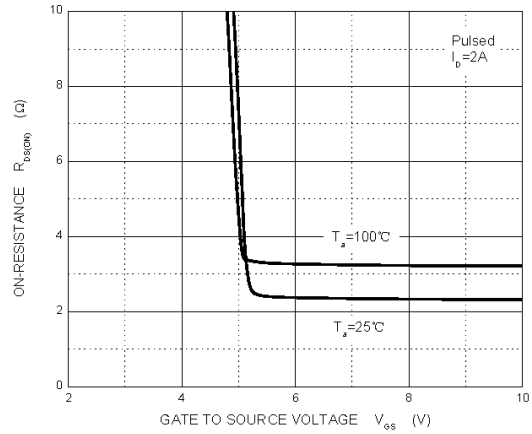
Transfer Characteristics



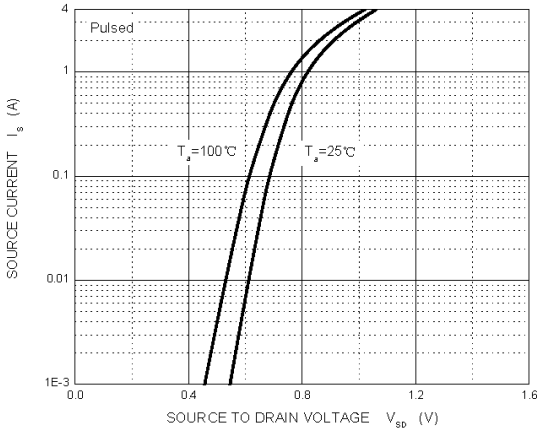
$R_{DS(ON)}$ —— I_D



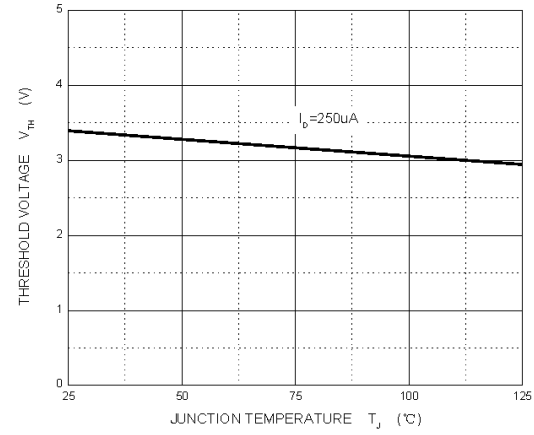
$R_{DS(ON)}$—— V_{GS}



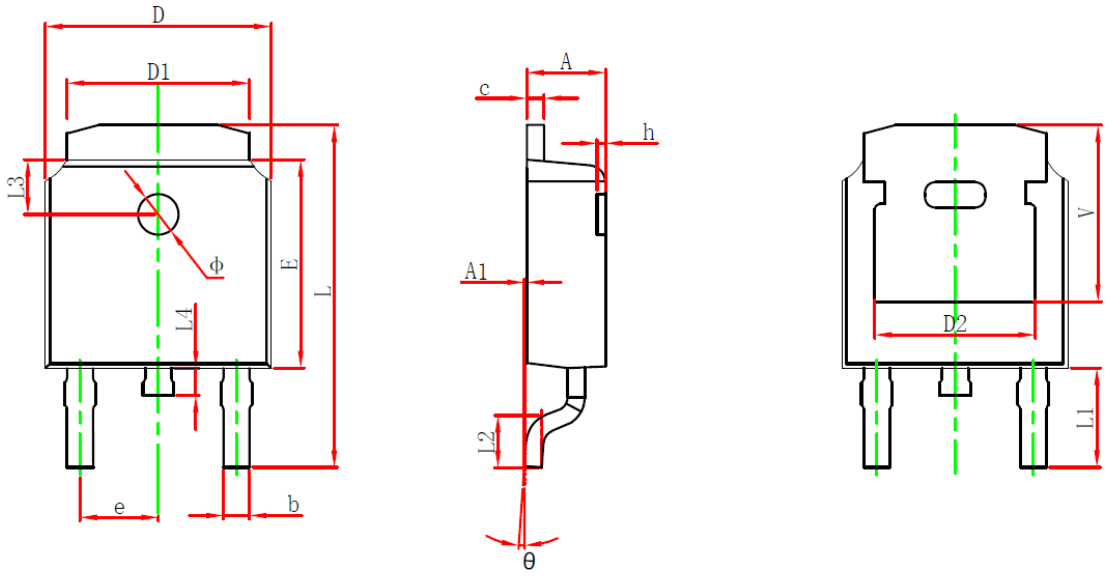
I_S —— V_{SD}



Threshold Voltage

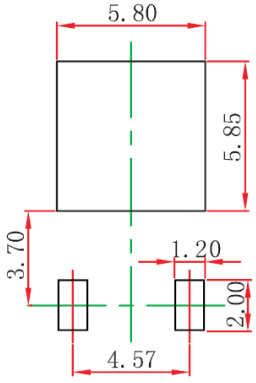


TO-252-2L PACKAGE OUTLINE DIMENSIONS



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

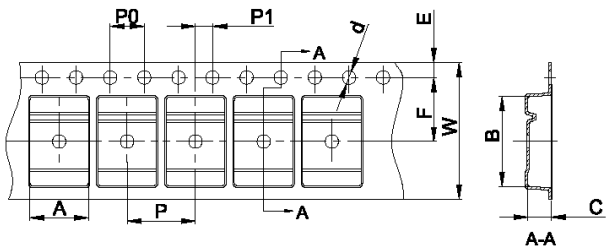


Note:

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

TO-252-2L TAPE AND REEL

TO-252 Embossed Carrier Tape

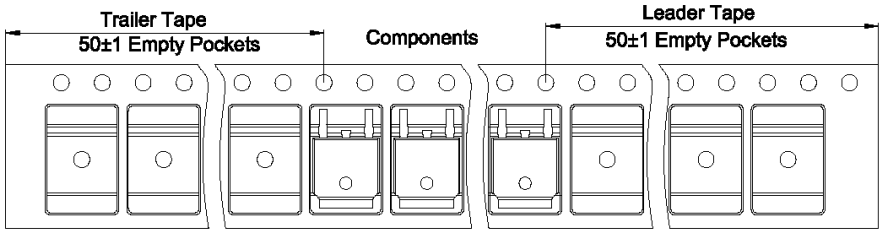


Packaging Description:

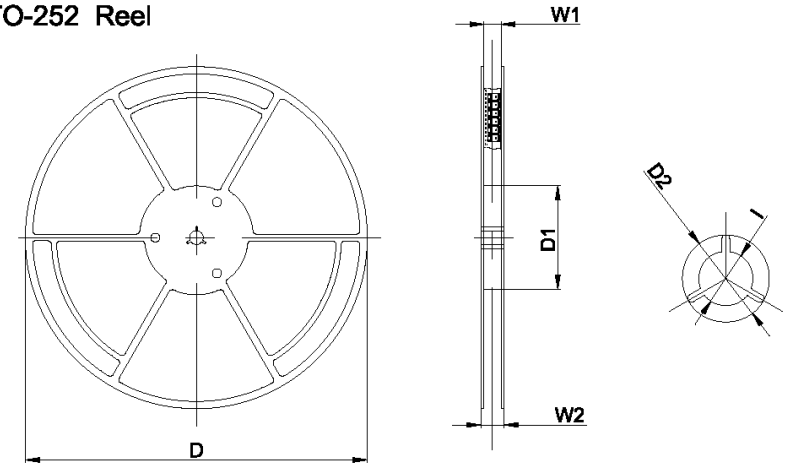
TO-252 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 25,00 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	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252 Tape Leader and Trailer



TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	

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