JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

PQFNWB5×6-8L Plastic-Encapsulate MOSFETS

CJAC10TH10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
100V	8mΩ@10V	100A
	10mΩ@4.5V	

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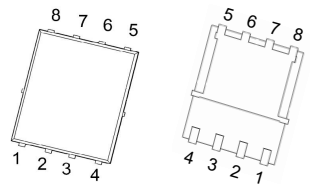


DESCRIPTION

The CJAC10TH10 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

- Low $R_{DS(on)}$
- Low Gate Charge

APPLICATIONS

- High efficiency power supply
- Secondary synchronus rectifier

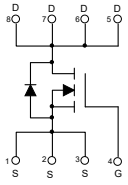
MARKING

CJAC10TH10 = Part No.

Solid dot=Pin1 indicator

XX=Date 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	100	A
Pulsed Drain Current(1)	I_{DM}	300	
Avalanche energy*	E_{AS}	130	mJ
Maximum Power Dissipation (Tc=25℃)	P_D	100	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.25	℃/W
Thermal Resistance from Junction to Ambient (note3)	$R_{\theta JA}$	42	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	

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

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

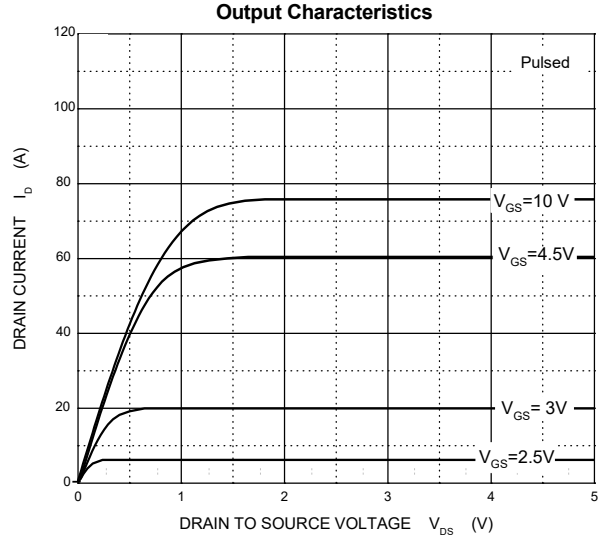
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage(1)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.8	2.5	V
Drain-source on-resistance(1)	$R_{DS(on)}$	V_{GS} =10V, I_D =12A		5.8	8.0	mΩ
		V_{GS} =4.5V, I_D =9A		8.5	10.0	
Gate resistance	R_G			3.0		Ω
Dynamic characteristics(2)						
Total gate charge	Q_g	V_{DS} =50V,V_{GS} =10V,I_D =10A		43.3		nC
Gate-source charge	Q_{gs}			5.6		
Gate-drain charge	Q_{gd}			12.4		
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V,f =1MHz		3950		pF
Output Capacitance	C_{oss}			521		
Reverse Transfer Capacitance	C_{rss}			12		
SWITCHING PARAMETERS(2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=50V, R_G=2Ω, I_D=10A		21.4		ns
Turn-on rise time	t_r			8.7		
Turn-off delay time	$t_{d(off)}$			68.4		
Turn-off fall time	t_f			43.2		
Source-Drain Diode characteristics(1)						
Body diode voltage	V_{SD}	I_S=30A,V_{GS}=0V			1.3	V
Reverse recovery time	T_{rr}	V_R=50V,I_S=10A,di/dt=100A/μs		68		ns
Reverse recovery charge	Q_{rr}			160		nC

Notes:

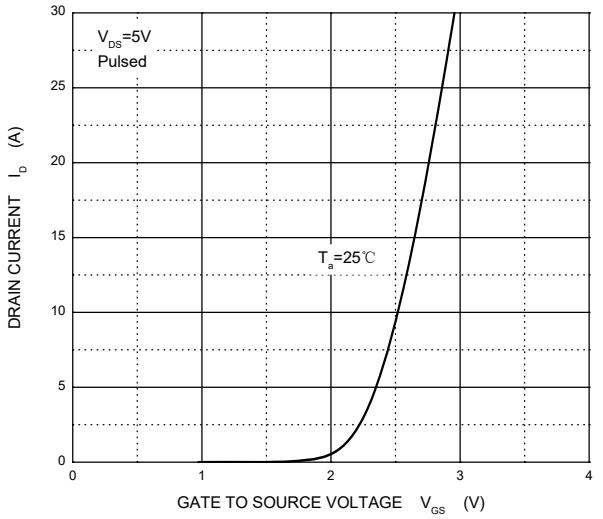
1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
2. Guaranteed by design, not subject to production testing.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 1.5oz. Copper, in a still air environment with T_a=25 ℃.

Typical Characteristics

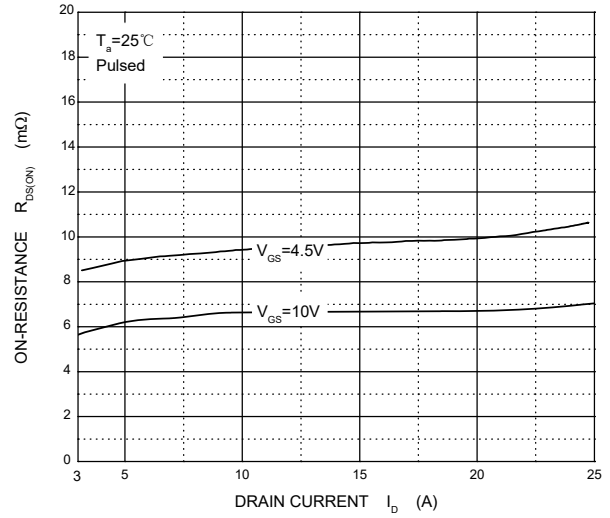
Output Characteristics



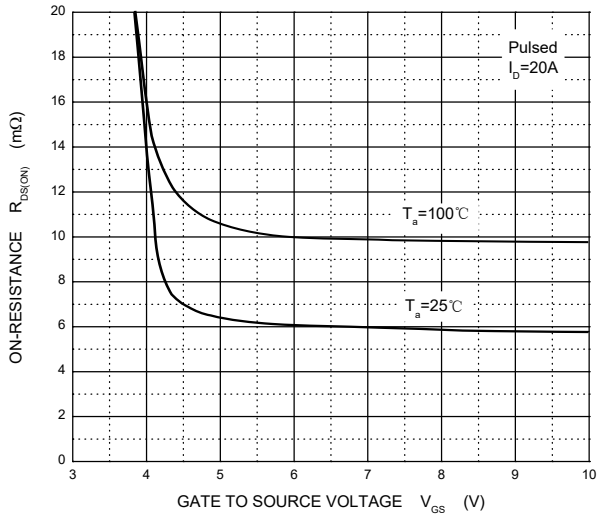
Transfer Characteristics



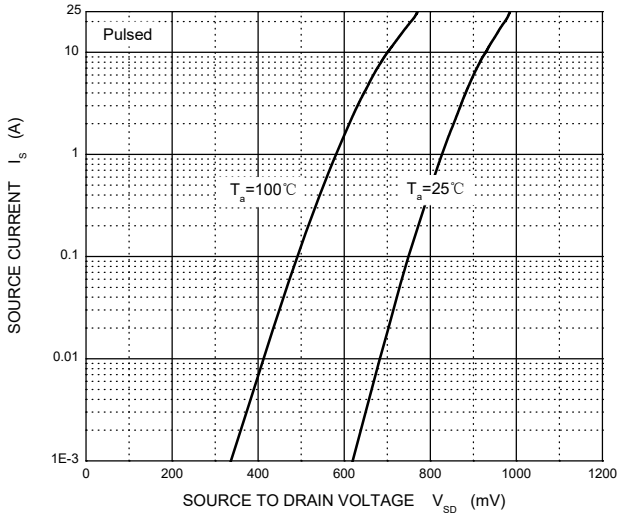
$R_{DS(ON)}$ —— I_D



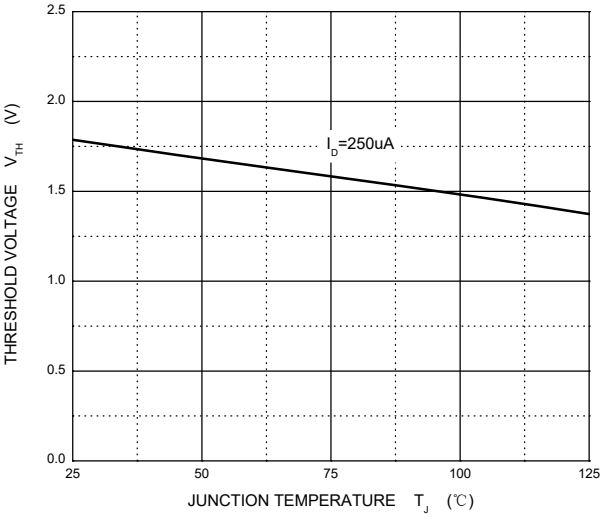
$R_{DS(ON)}$—— V_{GS}



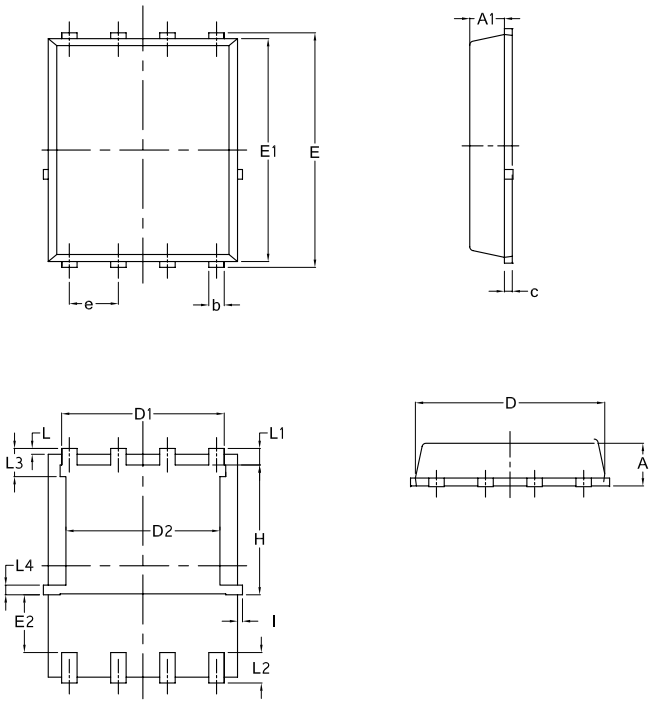
I_S —— V_{SD}



Threshold Voltage

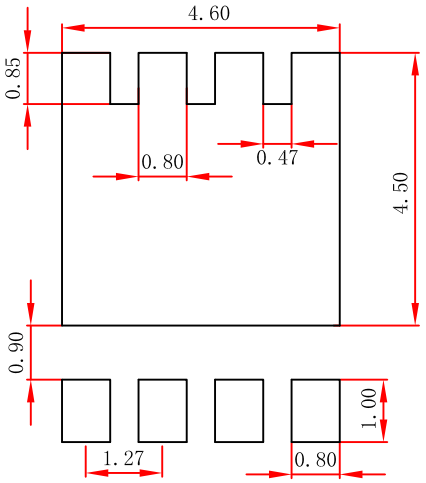


PQFNWB5x6-8L Package Outline Dimensions



SYMBOL	COMMON					
	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.10	1.17	0.0354	0.0433	0.0461
A1	0.824	0.897	0.97	0.0324	0.0353	0.0382
b	0.33	0.41	0.50	0.0130	0.0161	0.0197
c	0.150	0.20	0.250	0.0059	0.0079	0.0098
D	4.80	4.90	5.00	0.1890	0.1929	0.1969
D1	3.91	4.22	4.36	0.1539	0.1661	0.1717
D2	3.85	4.00	4.15	0.1516	0.1575	0.1634
E	5.90	6.05	6.15	0.2323	0.2382	0.2421
E1	5.65	5.76	5.85	0.2224	0.2268	0.2303
E2	1.10	/	/	0.0433	/	/
e	1.27 BSC			0.050 BSC		
L	0.05	0.15	0.25	0.0020	0.0059	0.0098
L1	0.38	0.425	0.50	0.0150	0.0167	0.0197
L2	0.51	0.785	0.86	0.0201	0.0309	0.0339
L3	0.55	0.70	0.85	0.0217	0.0276	0.0335
L4	0.10	0.25	0.40	0.0039	0.0098	0.0157
H	3.25	3.35	3.58	0.1280	0.1319	0.1409
I	0	/	0.18	0	/	0.0071

PQFNWB5x6-8L Suggested Pad Layout



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