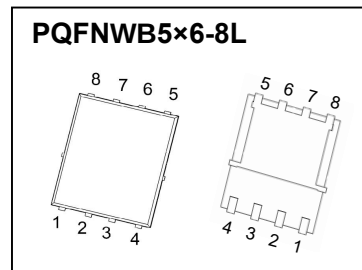


CJAC13TH06 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	3mΩ@10V	130A
	4.5mΩ@4.5V	



DESCRIPTION

The CJAC13TH06 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

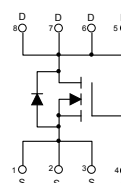
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply
- Power management

MARKING



CJAC13TH06 = Part No.
Solid dot=Pin1 indicator
XX=Date Code

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	130	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	390	
Maximum Power Dissipation	P_D	140	W
Avalanche energy*	E_{AS}	80	mJ
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.89	°C/W
Thermal Resistance from Junction to Ambient ⁽³⁾	$R_{\theta JA}$	62	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	

* EAS test condition $V_{DD}=50V$, $R_G=25\ \Omega$, $L=0.3\ \text{mH}$, starting $T_J=25\ ^\circ\text{C}$.

MOSFET ELECTRICAL CHARACTERISTICS

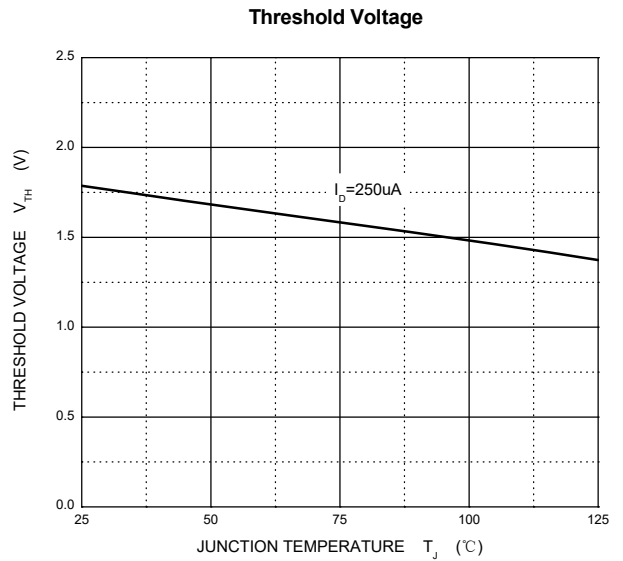
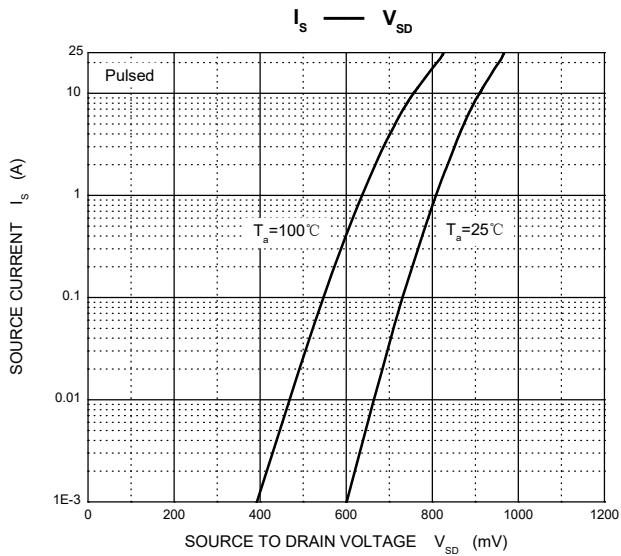
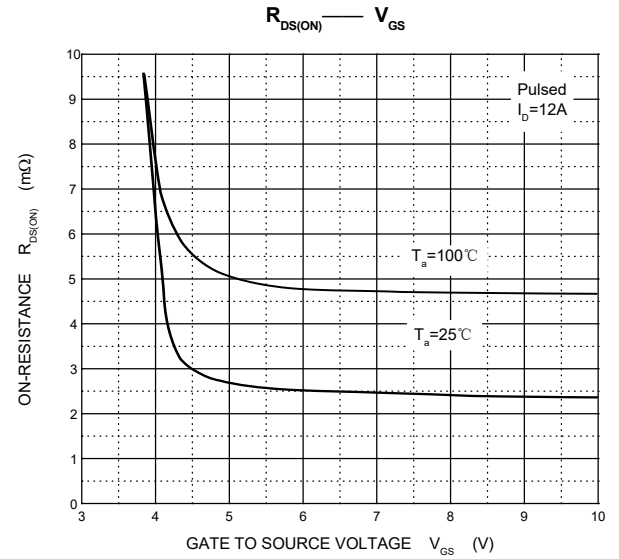
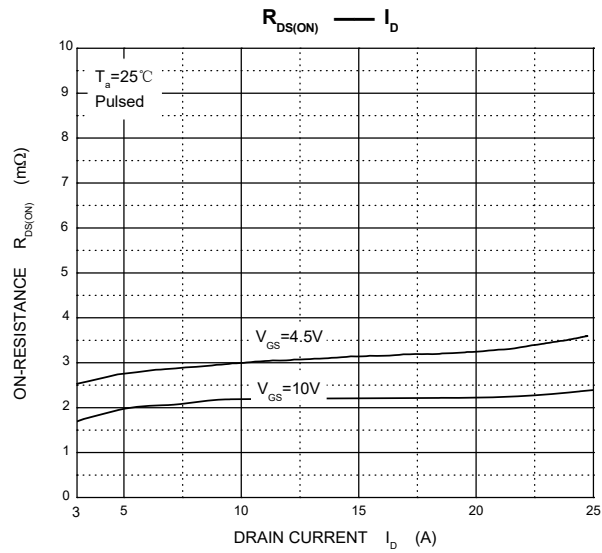
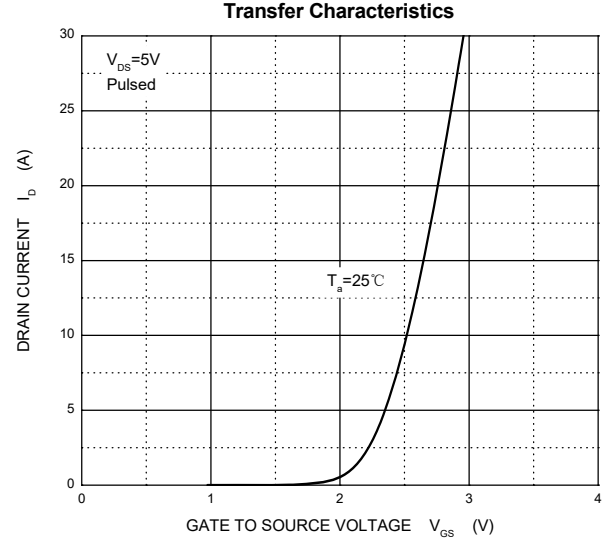
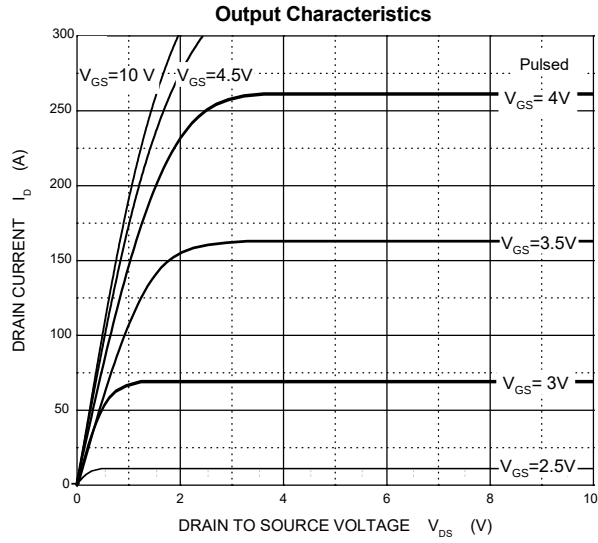
$T_a=25\text{ }^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage ⁽¹⁾	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.8	2.5	V
Drain-source on-resistance ⁽¹⁾	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 12A$		2.2	3.0	m Ω
		$V_{GS} = 4.5V, I_D = 12A$		3.0	4.5	
Gate resistance	R_G	$V_{DS} = 0V, V_{GS} = 15mV, f = 1.0MHz$		2.5		Ω
Dynamic characteristics ⁽²⁾						
Total gate charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 25A$		63.7		nC
Gate-source charge	Q_{gs}			10.3		
Gate-drain charge	Q_{gd}			11.4		
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 100kHz$		5298		pF
Output Capacitance	C_{oss}			1635		
Reverse Transfer Capacitance	C_{rss}			74.8		
SWITCHING PARAMETERS ⁽²⁾						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 30V, R_G = 2\Omega, I_D = 25A$		21.8		ns
Turn-on rise time	t_r			6.3		
Turn-off delay time	$t_{d(off)}$			78.5		
Turn-off fall time	t_f			27.1		
Source-Drain Diode characteristics ⁽¹⁾						
Body diode voltage	V_{SD}	$I_S = 20A, V_{GS} = 0V$			1.3	V

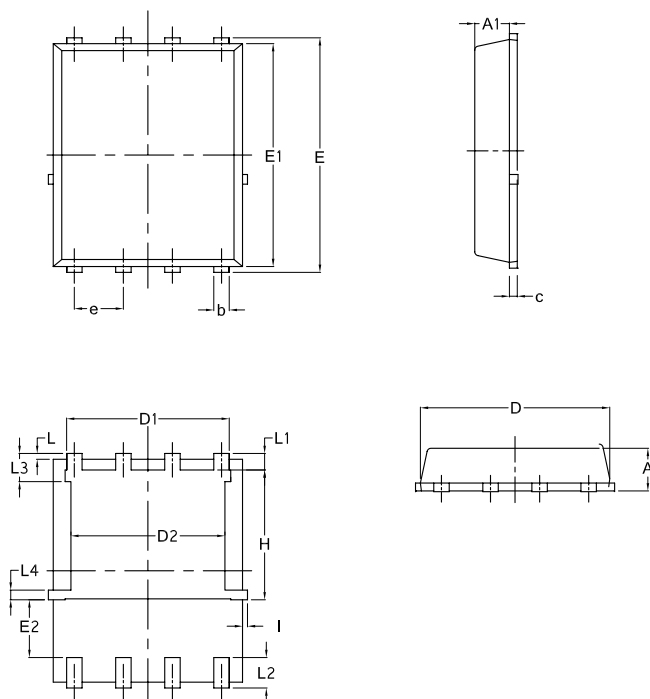
Notes:

1. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.
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 $T_a = 25\text{ }^{\circ}\text{C}$.

Typical Characteristics

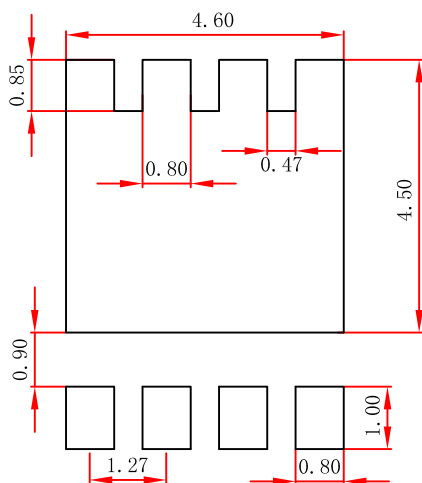


PQFNWB5x6-8L Package Outline Dimensions



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: ± 0.05 mm.
 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.