

MOSFET – N-Channel, Super Junction
650 V, 35.0 A, 95 mQ



JCB095N650S

Features

- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

V _{DSS}	R _{DS(ON)} MAX	I _D MAX
650 V	95 mQ @ 10 V	35.0A

Description

The JCB095N650S is the high cell density trenched N-ch MOSFETs, which provide excellent R_{DS(ON)} and gate charge for most of the synchronous buck converter applications. The JCB095N650S meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.



Equivalent Circuit	Outline
	<p>TO-263</p>

Package Marking and Ordering Information

Part Number	Top Marking	Device Package	Quantity
JCB095N650S	JCB095N650S	TO-263	800PCS/reel

JCB095N650S

Table 1. Thermal Characteristic

Symbol	Parameter	Max	Unit
R _{θJA}	Thermal Resistance Junction-ambient (Steady State) ¹	35	°C/W
R _{θJC}	Thermal Resistance Junction-Case ¹	0.4	°C/W

Table 2. Absolute Maximum Ratings (TA=25°C)

Symbol	Parameter	Value	Unit
V _{DS}	Drain-Source Voltage (V _{GS} =0V)	650	V
V _{GS}	Gate-Source Voltage (V _{DS} =0V)	±30	V
I _{D(DC)}	Drain Current-Continuous(Tc =25°C) ¹	35	A
	Drain Current-Continuous(Tc =100°C) ¹	22	A
I _{DM(pluse)}	Drain Current-Continuous@ Current-Pulsed ²	105	A
P _D	Maximum Power Dissipation(Tc=25°C) ⁴	312	W
E _{AS}	Single Pulse Avalanche Energy ³	540	mJ
T _J ,T _{STG}	Operating Junction and Storage Temperature Range	-55 To 150	°C

Table 3. Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =1mA	650			V
I _{DSS}	Zero Gate Voltage Drain Current(Tc=25°C)	V _{DS} =650V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±30V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μ A	3	4	5	V
R _{DS(ON)}	Drain-Source On-State Resistance ²	V _{GS} =10V, I _D =20A		84	95	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =400V, V _{GS} =0V f=1.0MHz		3375		PF
C _{oss}	Output Capacitance			76		PF
C _{rss}	Reverse Transfer Capacitance			8		PF
Switching Times						
t _{d(on)}	Turn-on Delay Time	V _{DS} =400V, R _G =2Ω V _{GS} =10V, I _D =20A		41		nS
t _r	Turn-on Rise Time			62		nS
t _{d(off)}	Turn-Off Delay Time			110		nS
t _f	Turn-Off Fall Time			36		nS
Q _g	Total Gate Charge [4.5V]			90		nC

JCB095N650S

Q_{gs}	Gate-Source Charge	$V_{DS}=400V,$ $V_{GS}=10V, I_D=20A$		20		nC
Q_{gd}	Gate-Drain Charge			45		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current(Body Diode) ^{1,5}				35	A
V_{SD}	Forward On Voltage ²	$I_{SD}=20A, V_{GS}=0V, T_J$ $=25^\circ C$			1.4	V
t_{rr}	Reverse Recovery Time	$T_J=25^\circ C, I_F=20A,$ $di/dt=100A/\mu s$		125		nS
Q_{rr}	Reverse Recovery Charge			800		nC

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width $\cong 300\mu s$, duty cycle $\cong 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD}=100V, V_{GS}=10V, L=10.8mH$
4. The power dissipation is limited by 150^oC junction temperature
5. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

JCB095N650S

Typical Characteristics

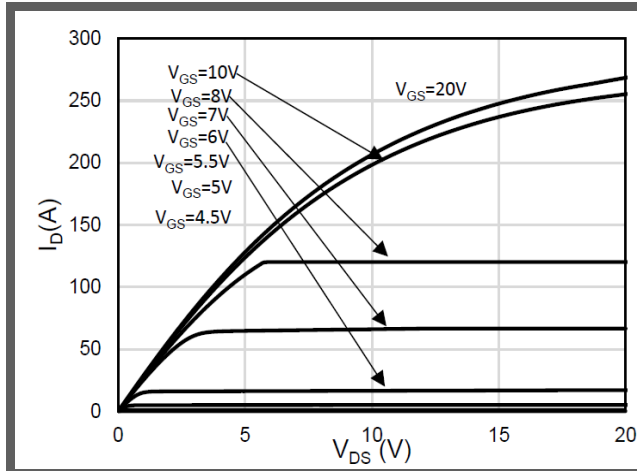


Figure 1: Output Characteristics

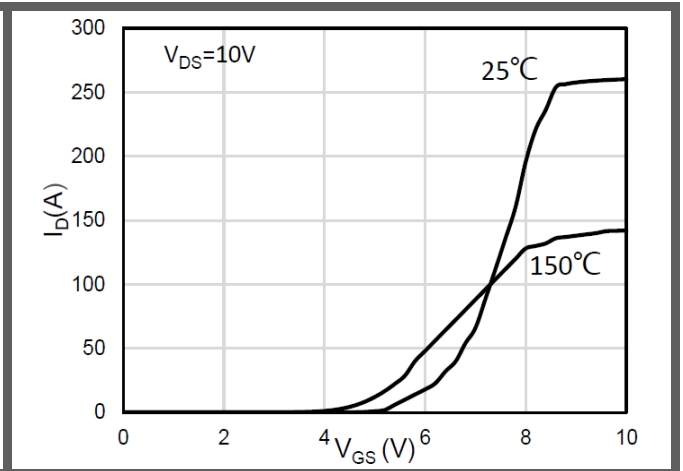


Figure 2: Transfer Characteristics

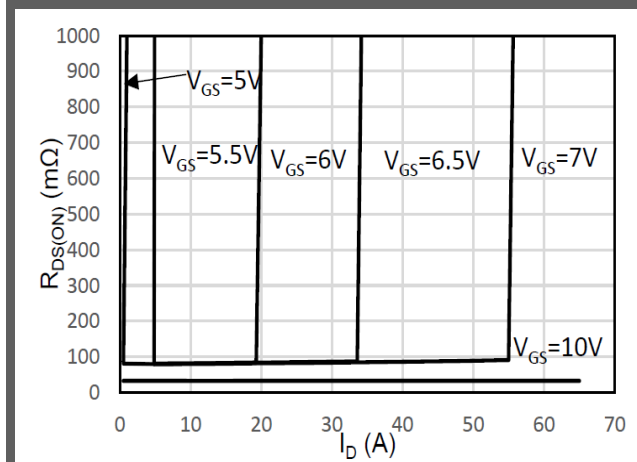


Figure 3: On-Resistance vs. Drain Current

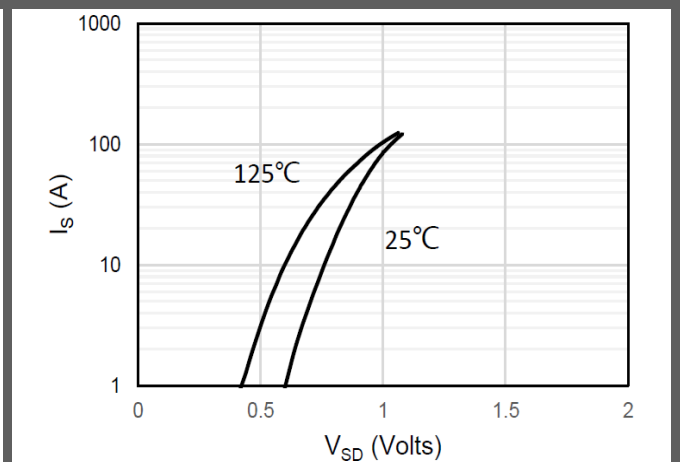


Figure 4: Body Diode Characteristics

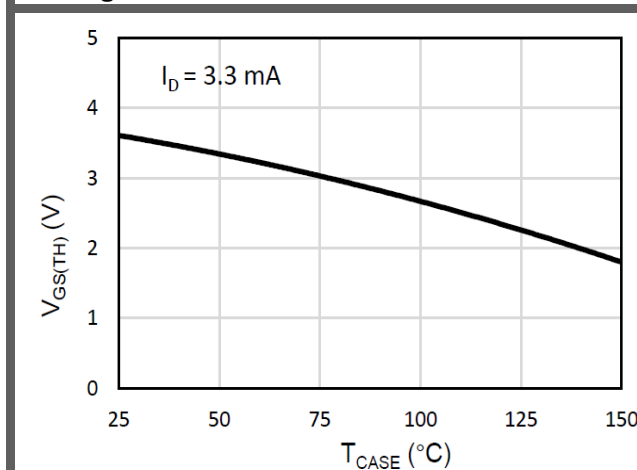


Figure 5: Threshold Voltage vs. Junction Temperature

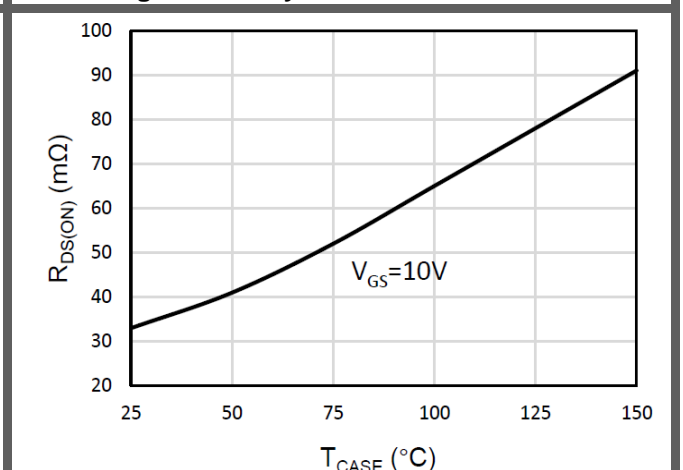


Figure 6: On-Resistance vs. Junction Temperature

JCB095N650S

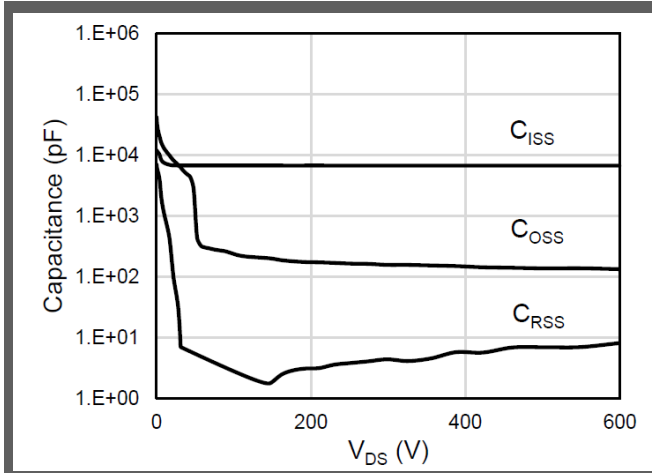


Figure 7: Capacitance Characteristics

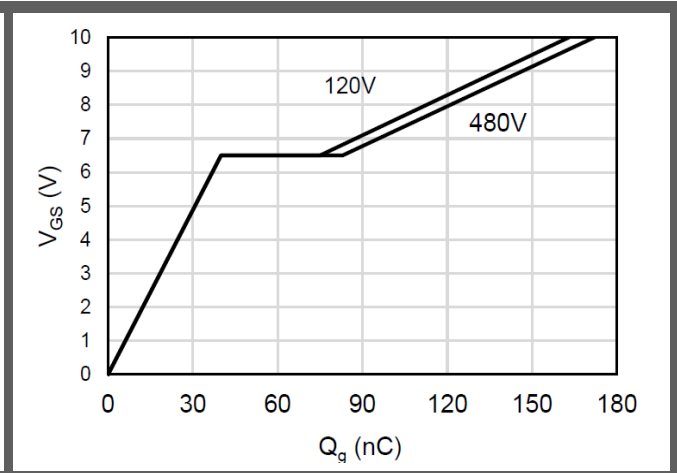


Figure 8: Gate Charge Characteristics

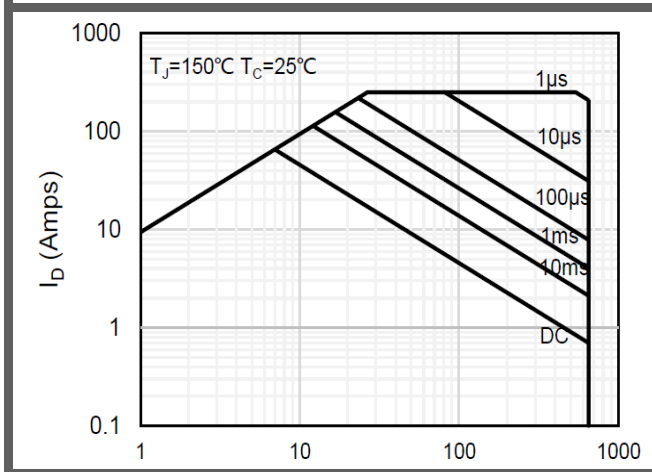


Figure 9: Maximum Forward Biased Safe Operating Area

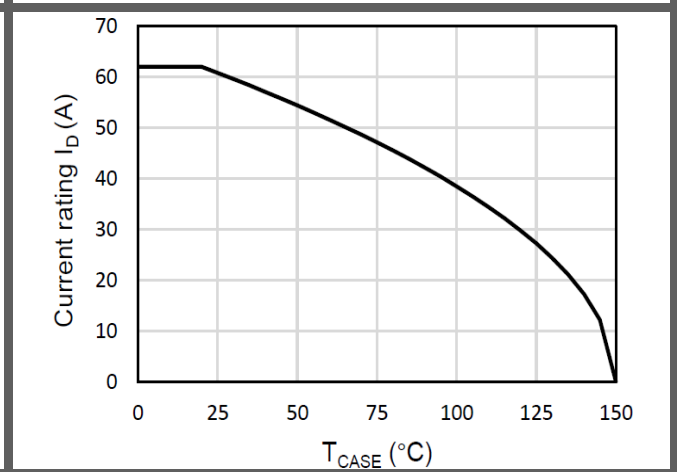


Figure 10: Drain Current

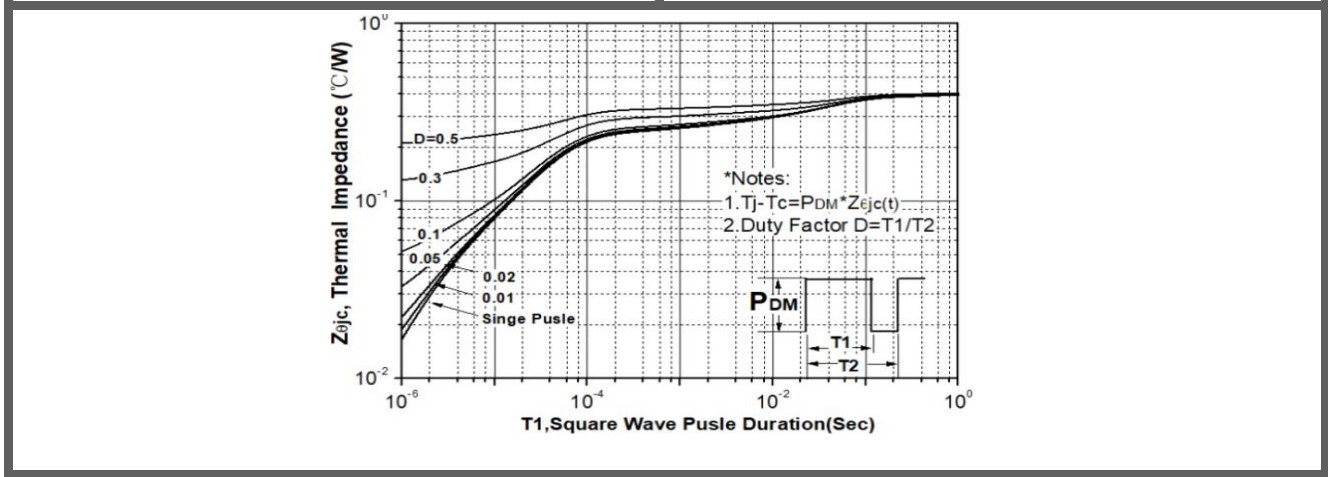


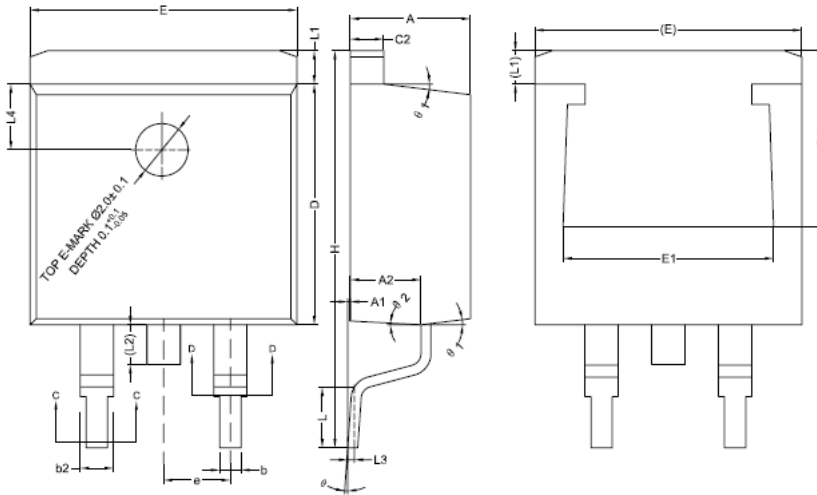
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

MOSFET – N-Channel, Super Junction
650 V, 35.0 A, 95 mQ



PACKAGE DIMENSIONS

TO-263 3-LEAD



COMMON DIMENSIONS
 (UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	4.40	4.57	4.70
A1	0	0.10	0.25
A2	2.59	2.69	2.79
b	0.77	-	0.90
b1	0.76	0.81	0.86
b2	1.23	-	1.36
b3	1.22	1.27	1.32
c	0.34	-	0.47
c1	0.33	0.38	0.43
c2	1.22	-	1.32
D	9.05	9.15	9.25
D1	6.60	-	-
E	10.06	10.16	10.26
E1	7.80	-	8.20
e	2.54BSC		
H	14.70	15.10	15.50
L	2.00	2.30	2.60
L1	1.17	1.27	1.40
L2	-	-	1.75
L3	0.25BSC		
L4	2.00REF		
theta	0°	-	8°
theta 1	5°	7°	9°
theta 2	1°	3°	5°

Note:
 Dimension and tolerance per ASME 14.5M,1994.
 Controlling dimension: Millimeters

JCB095N650S

Disclaimer

All product specifications and data are subject to change without notice.

For documents and material available from this datasheet, Suzhou HuaMeiYiXin does not warrant or assume any legal liability or responsibility for the accuracy, completeness of any product or technology disclosed hereunder.

Sales Information

Contact: Alan Zhang

[Mail: Alan.zhang@jitrec.com](mailto:Alan.zhang@jitrec.com)

MP: 13862141265

Address: Room 614, logistics building 112, Modern Avenue 88, Suzhou Industrial Park, JiangSu, China