

Features

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

Product Summary

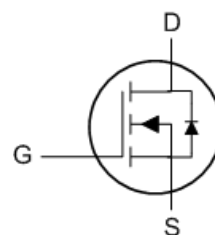
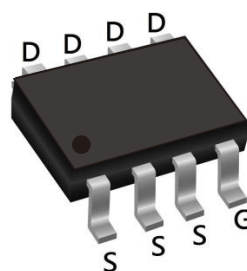
BVDSS	RDSON	ID
60V	8.5mΩ	13A

Description

The JHS6032 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JHS6032 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

SOP-8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	13	A
$I_D @ T_A = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	8	A
I_{DM}	Pulsed Drain Current ²	60	A
EAS	Single Pulse Avalanche Energy ³	80	mJ
I_{AS}	Avalanche Current	40	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation ⁴	2.7	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹ ($t \leq 10S$)	---	45	$^\circ\text{C/W}$
	Thermal Resistance Junction-ambient ¹ (Steady State)	---	80	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =10A	---	---	8.5	mΩ
		V _{GS} =4.5V , I _D =8A	---	---	12	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	---	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =48V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =48V , V _{GS} =0V , T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V , V _{DS} =0V	---	---	± 100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =10A	---	50	---	S
Q _g	Total Gate Charge (10V)	V _{DS} =48V , V _{GS} =10V , I _D =10A	---	57	---	nC
Q _{gs}	Gate-Source Charge		---	8.7	---	
Q _{gd}	Gate-Drain Charge		---	14	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V , V _{GS} =10V , R _G =3.3Ω, I _D =10A	---	16.2	---	ns
T _r	Rise Time		---	41.2	---	
T _{d(off)}	Turn-Off Delay Time		---	56.4	---	
T _f	Fall Time		---	16.2	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	3307	---	pF
C _{oss}	Output Capacitance		---	201	---	
C _{rss}	Reverse Transfer Capacitance		---	151	---	
Diode Characteristics						
I _s	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	10	A
I _{SM}	Pulsed Source Current ^{2,5}		---	---	60	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =1A , T _J =25°C	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _F =10A , dI/dt=100A/μs ,	---	24	---	nS
Q _{rr}	Reverse Recovery Charge	T _J =25°C	---	15	---	nC

Note :

- 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 $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=0.1mH$, $I_{AS}=40A$
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_S , in real applications , should be limited by total power dissipation.

Typical Characteristics

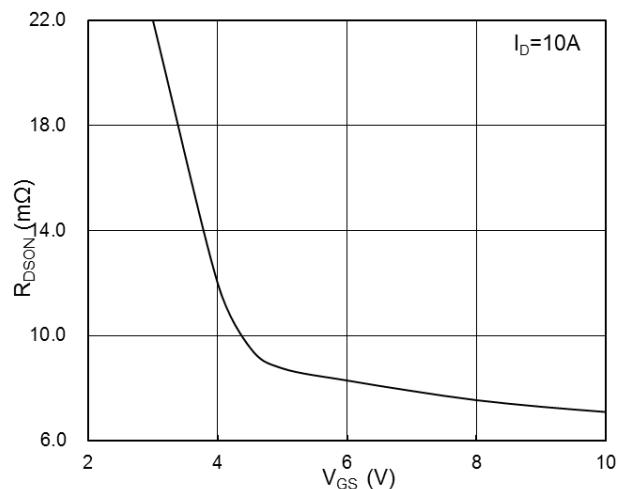
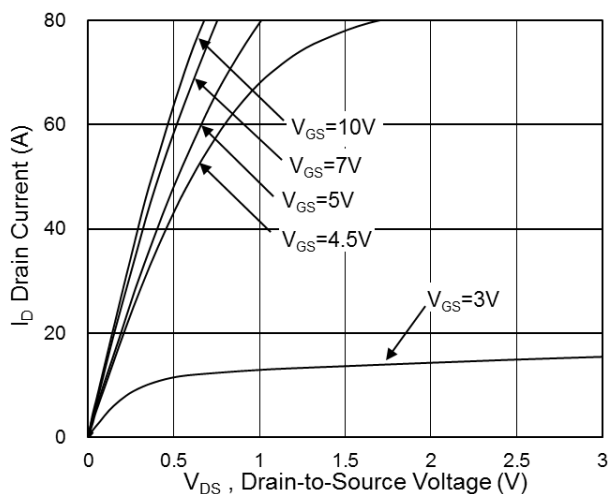


Fig.1 Typical Output Characteristics

Fig.2 On-Resistance v.s Gate-Source Voltage

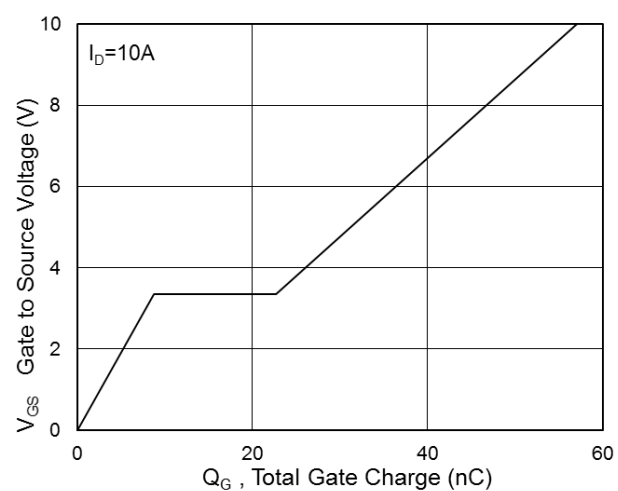
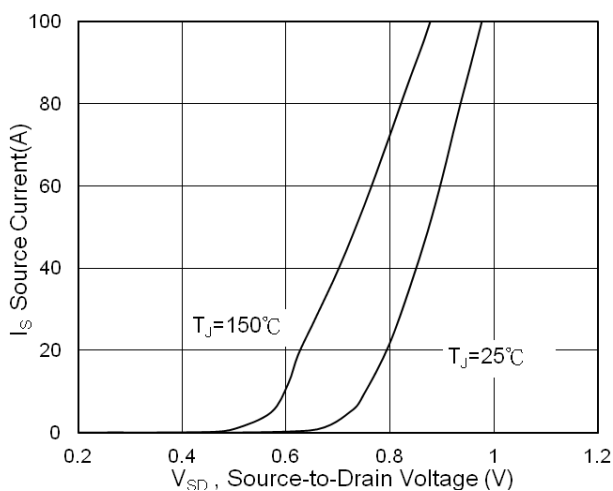


Fig.3 Forward Characteristics of Reverse

Fig.4 Gate-Charge Characteristics

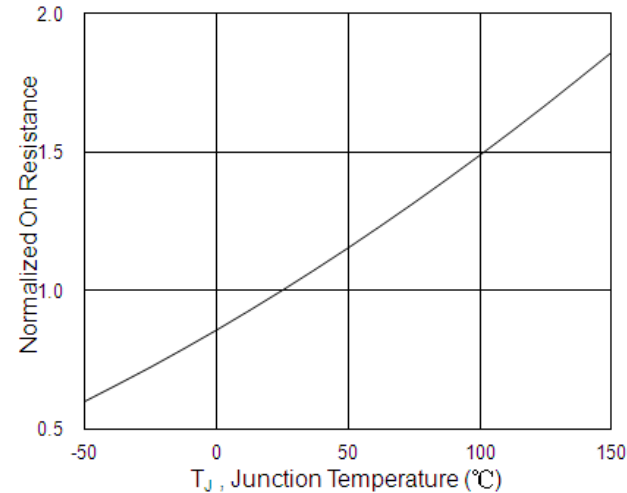
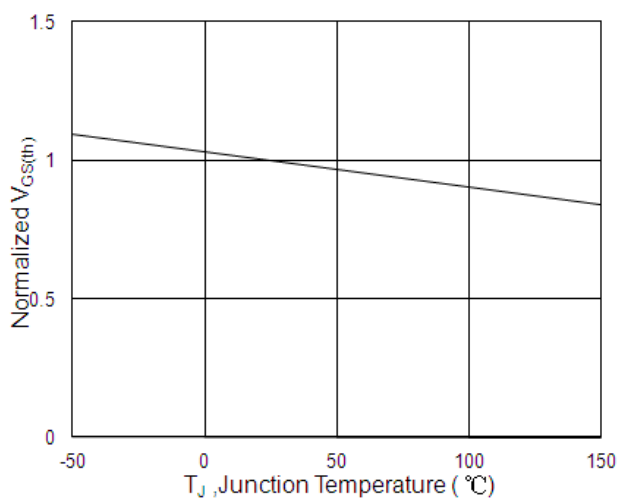


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

Fig.6 Normalized $R_{DS(on)}$ vs. T_J

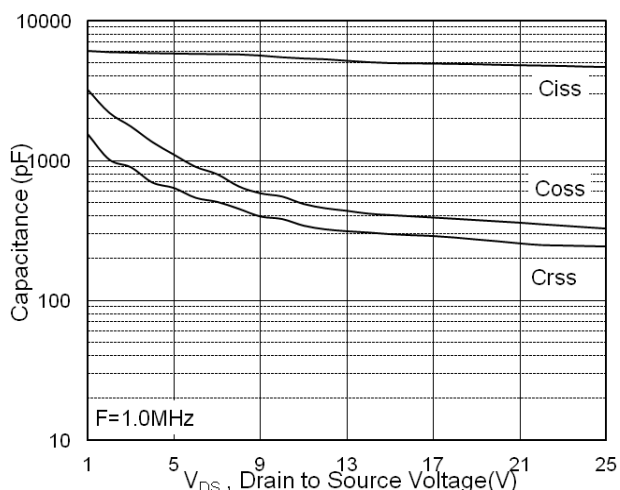


Fig.7 Capacitance

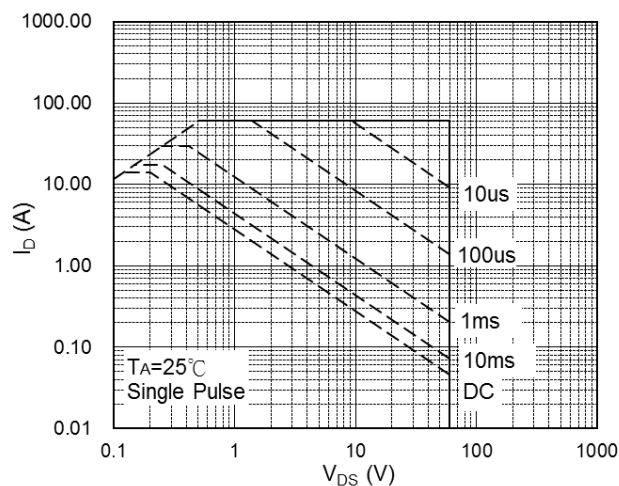


Fig.8 Safe Operating Area

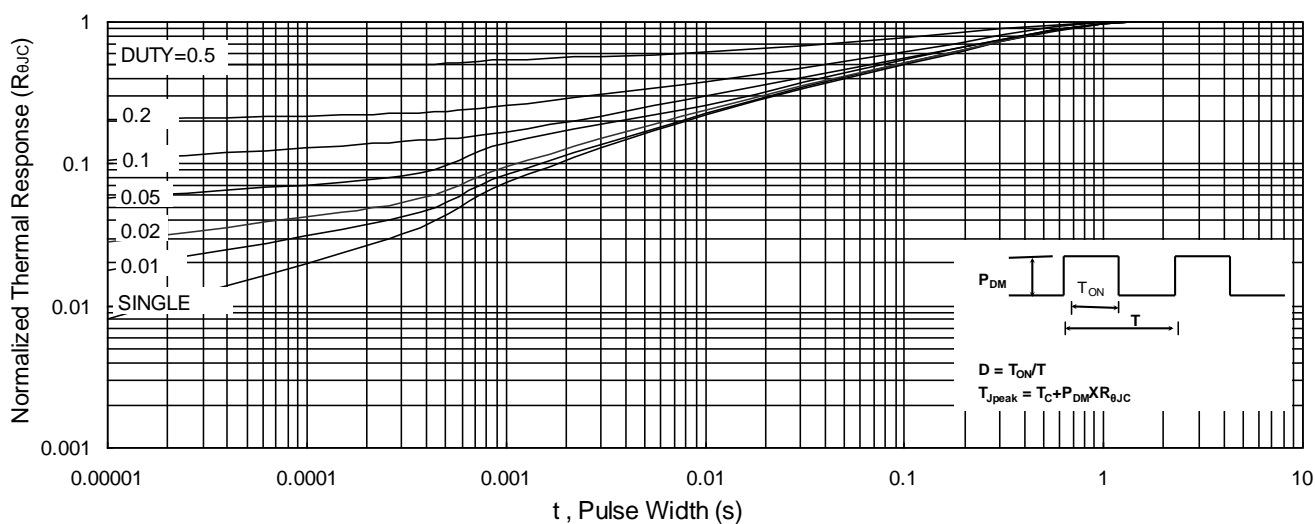


Fig.9 Normalized Maximum Transient Thermal Impedance

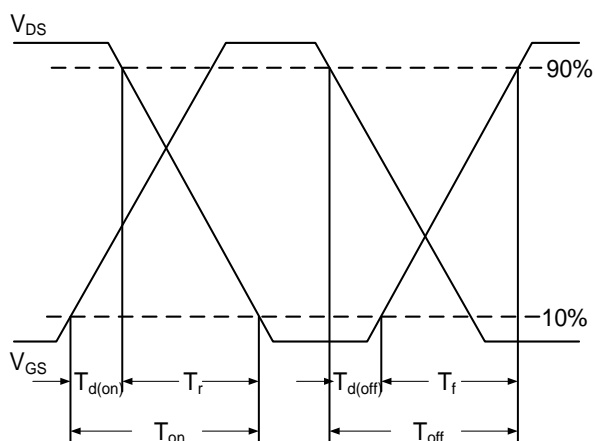


Fig.10 Switching Time Waveform

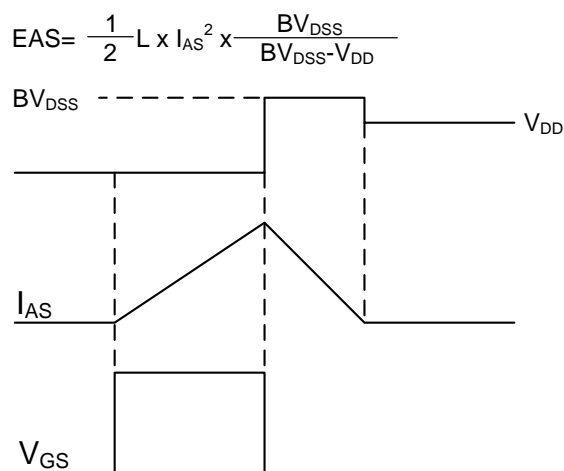
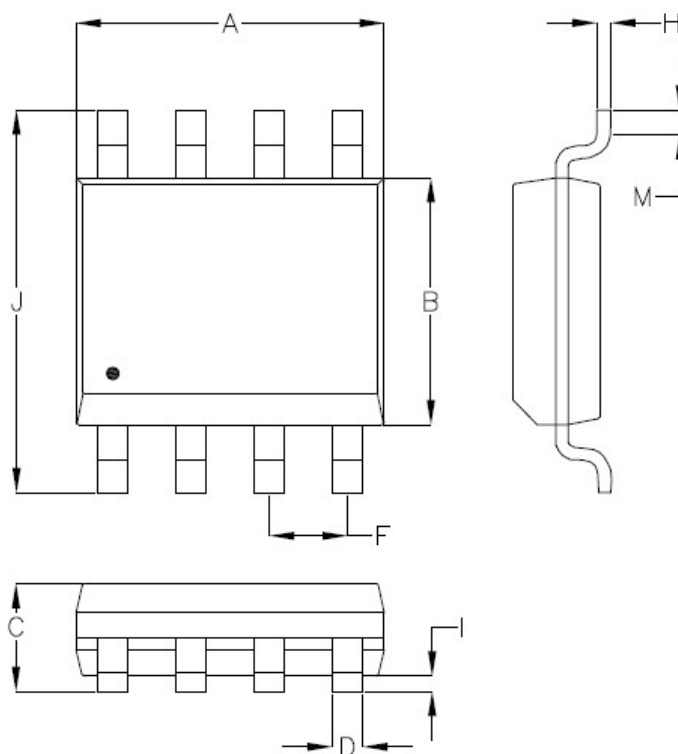


Fig.11 Unclamped Inductive Switching Waveform

SOP-8L Package Outline



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.700	5.150	0.185	0.203
B	3.700	4.100	0.146	0.161
C	1.23	1.753	0.048	0.069
D	0.310	0.510	0.012	0.020
F	1.070	1.470	0.042	0.058
H	0.160	0.254	0.006	0.010
I	0.050	0.254	0.002	0.010
J	5.750	6.250	0.226	0.246
M	0.400	1.270	0.016	0.050

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