

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

## Product Summary



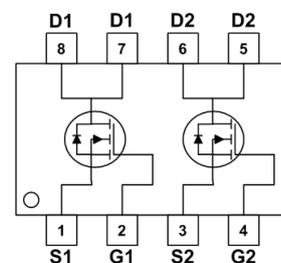
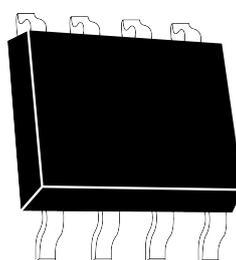
BVDSS	RDS(on)	ID
60V	25mΩ	8.0A

## Description

The JH8V06S is the high cell density trenched N-ch MOSFETs, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications.

The JH8V06S meet the RoHS and Green Product

## SOP8 Pin Configuration



## Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	60	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_A=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	8.0	A
$I_D@T_A=70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	5.5	A
$I_{DM}$	Pulsed Drain Current <sup>2</sup>	25	A
EAS	Single Pulse Avalanche Energy <sup>3</sup>	28	mJ
$I_{AS}$	Avalanche Current	10	A
$P_D@T_A=25^\circ C$	Total Power Dissipation <sup>4</sup>	1.5	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ C$

## Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient <sup>1</sup>	---	80	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case <sup>1</sup>	---	25	$^\circ C/W$

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

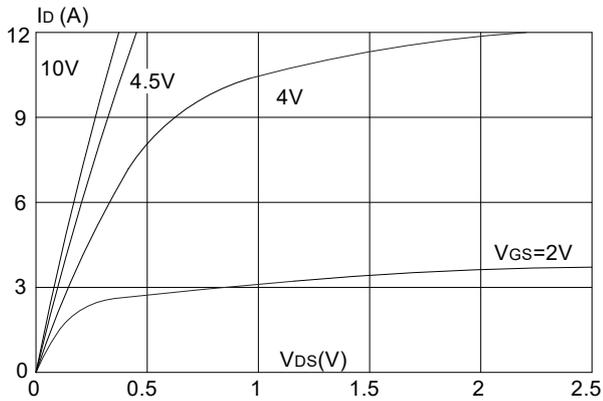
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60	-	-	V
Gate-Body Leakage Current	$I_{GBSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA
Zero Gate Voltage Drain Current	$T_J=25^\circ\text{C}$	$V_{DS} = 60V, V_{GS} = 0V$	-	-	1	$\mu A$
	$T_J=100^\circ\text{C}$		-	-	100	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.7	2.5	V
Drain-Source on-Resistance <sup>4</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$	-	25	32	m $\Omega$
		$V_{GS} = 4.5V, I_D = 5A$	-	31	40	
Forward Transconductance <sup>4</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 10A$	-	15.5	-	S
<b>Dynamic Characteristics<sup>5</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$	-	1355	-	pF
Output Capacitance	$C_{oss}$		-	60	-	
Reverse Transfer Capacitance	$C_{rss}$		-	49	-	
Gate Resistance	$R_G$	$f = 1MHz$	-	1.2	-	$\Omega$
<b>Switching Characteristics<sup>5</sup></b>						
Total Gate Charge	$Q_g$	$V_{GS} = 10V, V_{DD} = 30V, I_D = 10A$	-	22	-	nC
Gate-Source Charge	$Q_{gs}$		-	4.2	-	
Gate-Drain Charge	$Q_{gd}$		-	6.9	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 30V, R_G = 3\Omega, I_D = 10A$	-	6.4	-	ns
Rise Time	$t_r$		-	15.3	-	
Turn-off Delay Time	$t_{d(off)}$		-	25	-	
Fall Time	$t_f$		-	7.6	-	
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F = 10A, dI_F/dt = 100A/\mu s$	-	26	-	ns
Body Diode Reverse Recovery Charge	$Q_{rr}$		-	45	-	nC
<b>Drain-Source Body Diode Characteristics</b>						
Diode Forward Voltage <sup>4</sup>	$V_{SD}$	$I_S = 10A, V_{GS} = 0V$	-	-	1.2	V
Continuous Source Current	$I_S$	$T_C = 25^\circ\text{C}$	-	-	8	A

Notes:

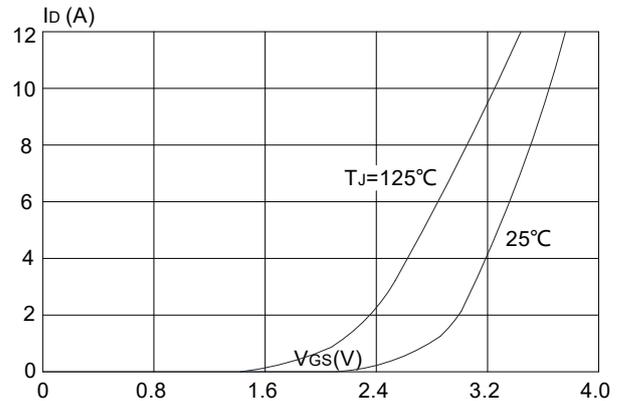
1. Repetitive rating, pulse width limited by junction temperature  $T_{J(MAX)} = 150^\circ\text{C}$
2. The EAS data shows Max. rating . The test condition is  $V_{DD} = 25V, V_{GS} = 10V, L = 0.4mH, I_{AS} = 14A$
3. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
4. The data tested by pulsed , pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$ .
5. This value is guaranteed by design hence it is not included in the production test.

## Typical Performance Characteristics

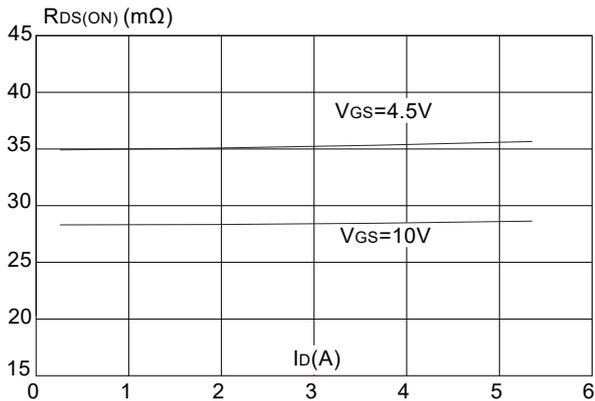
**Figure 1: Output Characteristics**



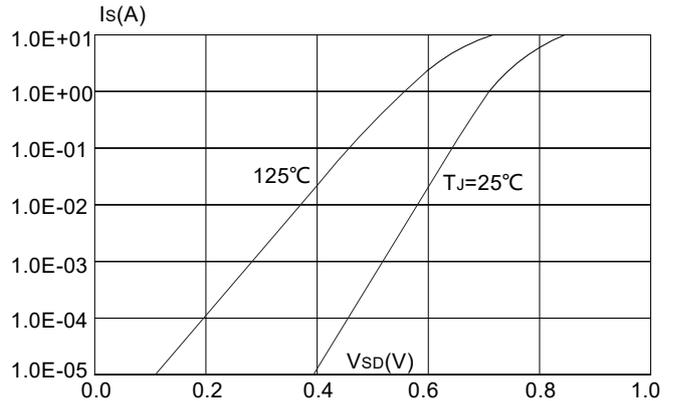
**Figure 2: Typical Transfer Characteristics**



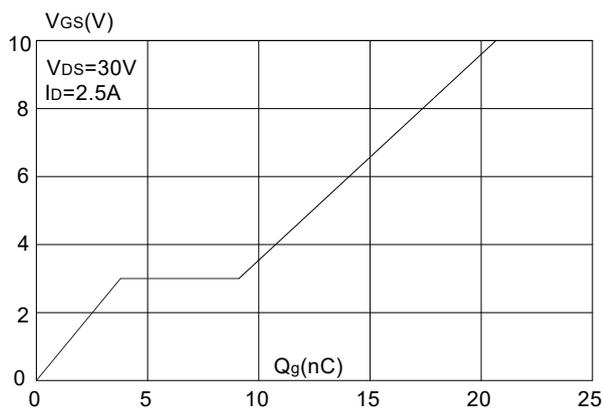
**Figure 3: On-resistance vs. Drain Current**



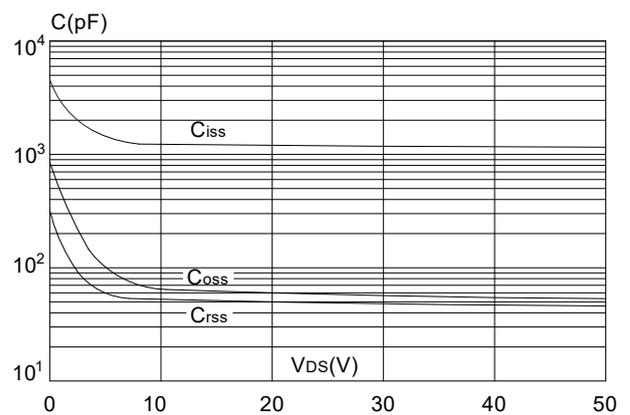
**Figure 4: Body Diode Characteristics**



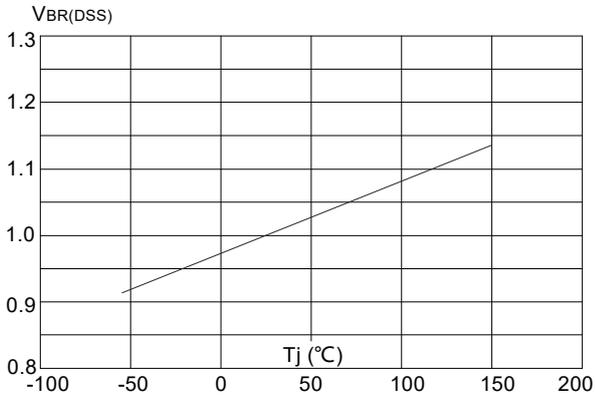
**Figure 5: Gate Charge Characteristics**



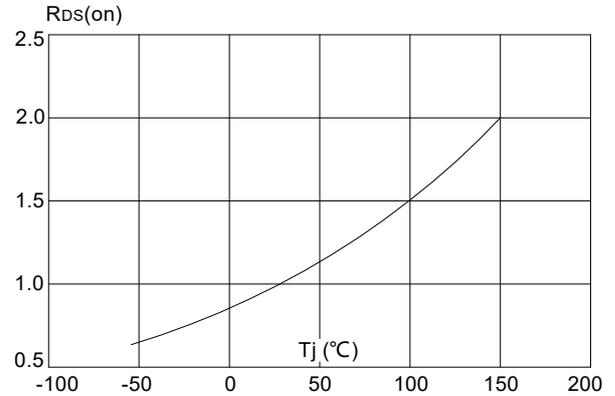
**Figure 6: Capacitance Characteristics**



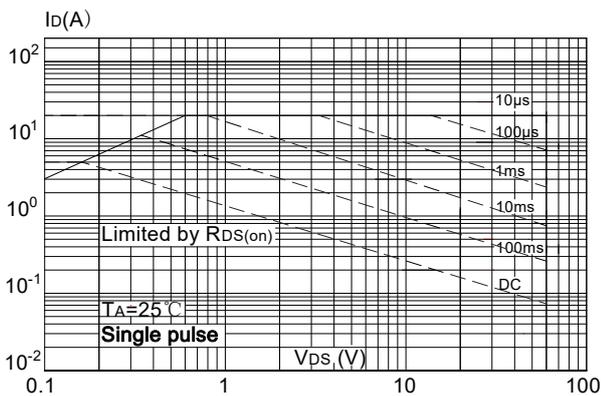
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



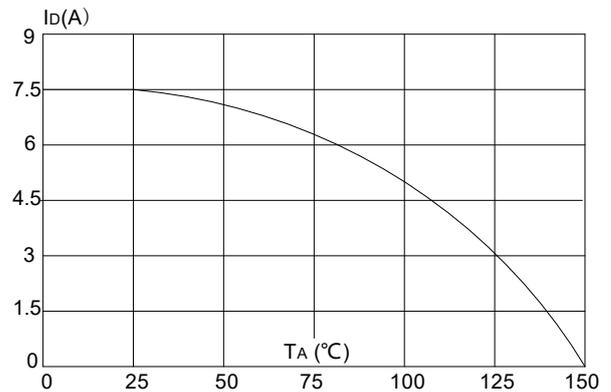
**Figure 8:** Normalized on Resistance vs. Junction Temperature



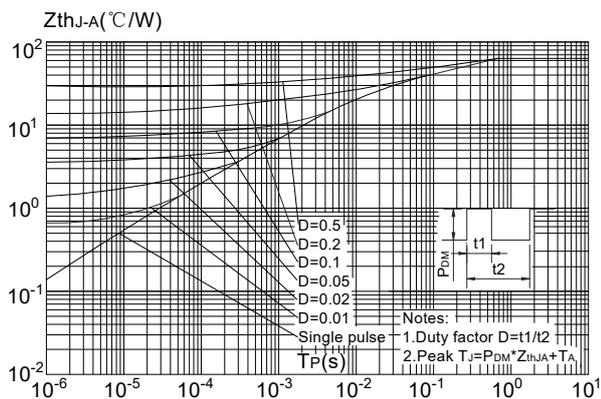
**Figure 9:** Maximum Safe Operating Area



**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature

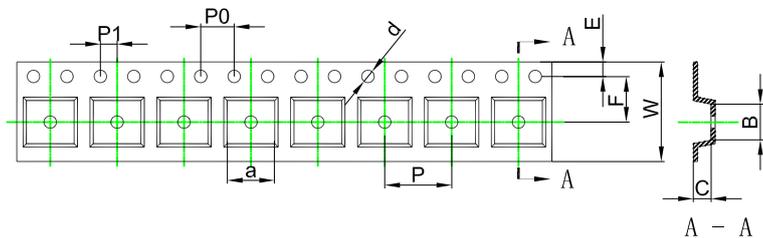


**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



## SOP8 Tape and Reel Information

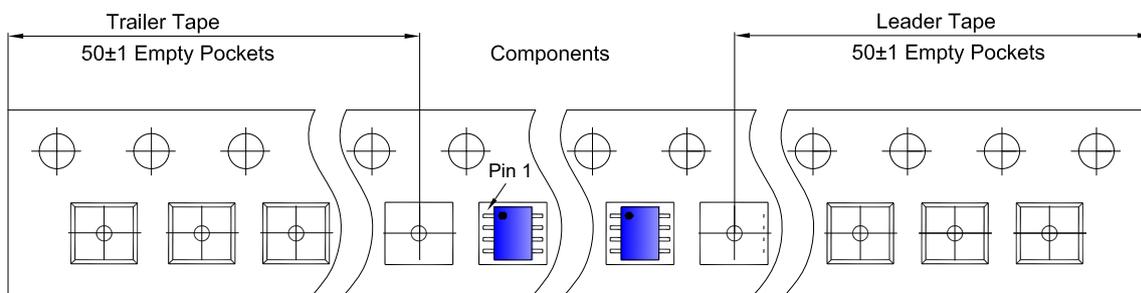
### Embossed Carrier Tape



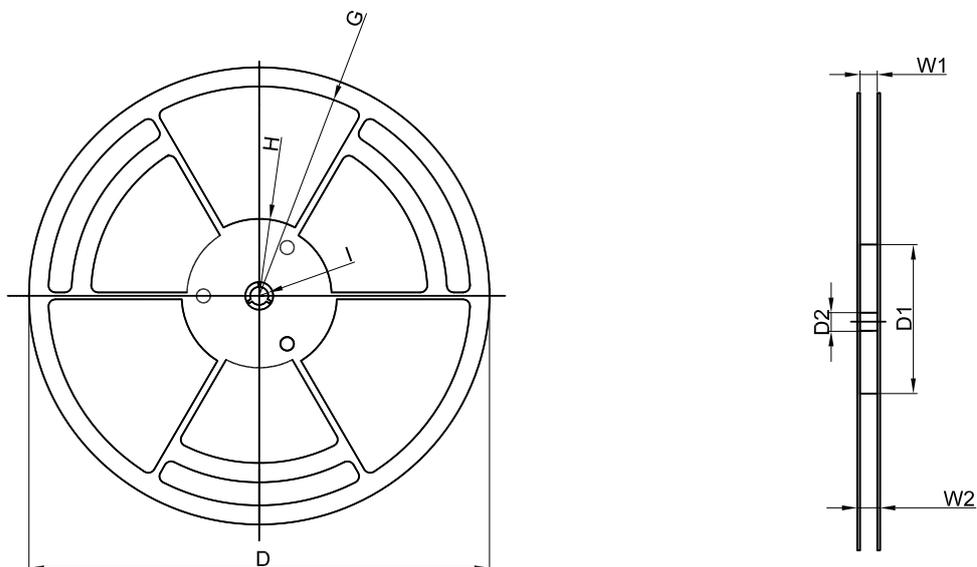
Dimensions are in millimeter

Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOP8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

### Tape Leader and Trailer



### Reel

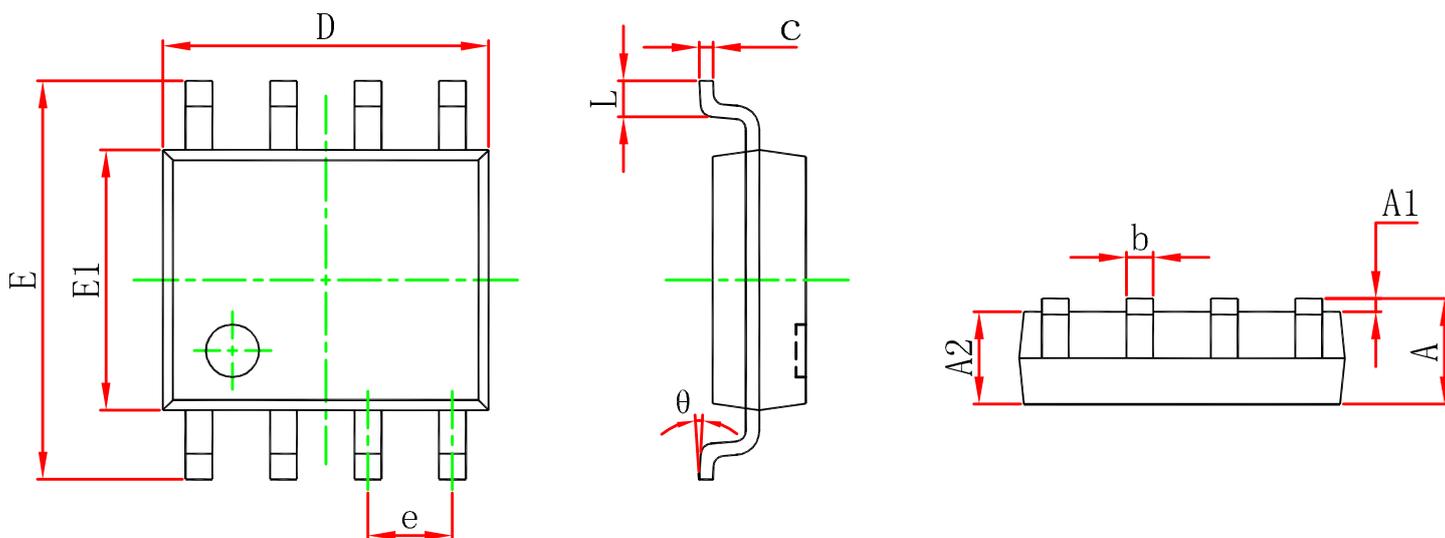


Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
13" Dia	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3,000 pcs	13 inch	6,000 pcs	360×360×65	48,000 pcs	565×380×390	



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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