

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

### Product Summary



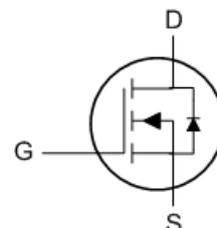
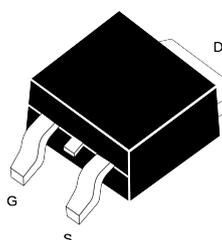
BVDSS	RDSON	ID
60V	23mΩ	30A

### Description

The JH30N06 the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JH30N06 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

### TO-252 Pin Configuration



### Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units
V <sub>DSS</sub>	Drain-Source Voltage	60	V
V <sub>GSS</sub>	Gate-Source Voltage	±30	V
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> = 25°C	30
		T <sub>C</sub> = 100°C	13
I <sub>DM</sub>	Pulsed Drain Current <sup>note1</sup>	100	A
EAS	Single Pulsed Avalanche Energy <sup>note2</sup>	39	mJ
P <sub>D</sub>	Power Dissipation	41.7	W
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	50	°C/W
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Temperature Range	-55 to +175	°C

## 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	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 60V, V_{GS} = 0V$	$T_J = 25^\circ\text{C}$	-	-	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>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$	-	23	32	m $\Omega$	
		$V_{GS} = 4.5V, I_D = 5A$	-	31.5	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	$C_{iss}$	$V_{DS} = 30V, V_{GS} = 0V, f = 1\text{MHz}$	-	1355	-	$\mu F$	
Output Capacitance	$C_{oss}$		-	60	-		
Reverse Transfer Capacitance	$C_{rss}$		-	49	-		
Gate Resistance	$R_G$	$f = 1\text{MHz}$	-	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	$I_S$	$T_C = 25^\circ\text{C}$	-	-	30	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  $V_{DD} = 25V, V_{GS} = 10V, L = 0.4\text{mH}, I_{AS} = 14A$
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 Characteristics

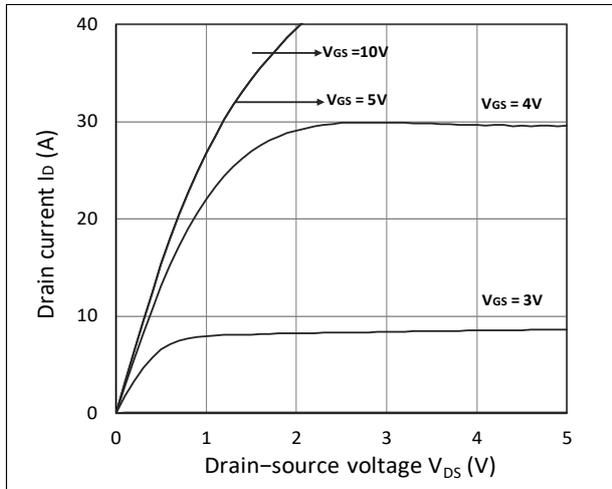


Figure 1. Output Characteristics

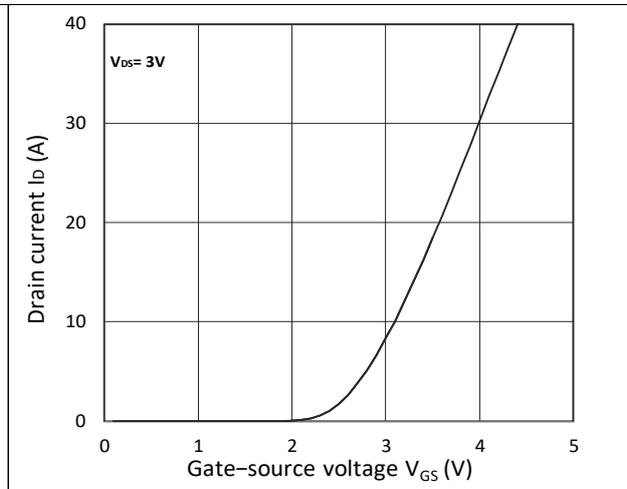


Figure 2. Transfer Characteristics

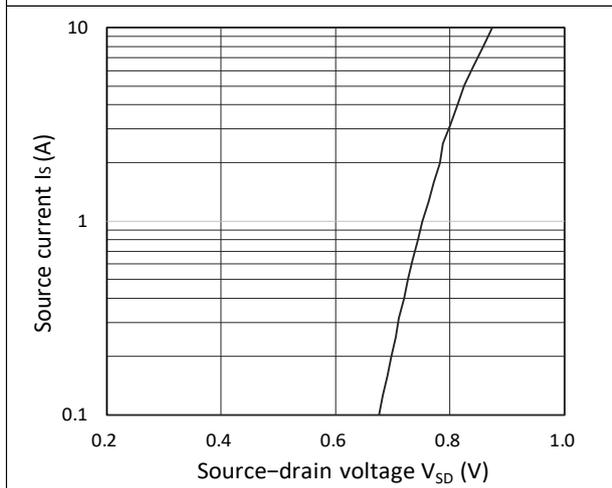


Figure 3. Forward Characteristics of Reverse

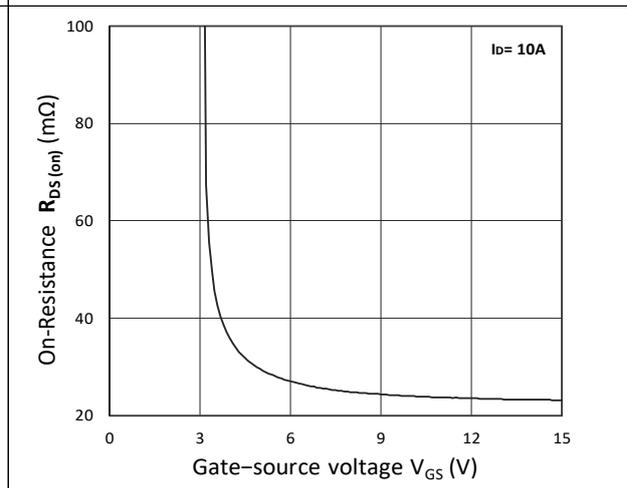


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

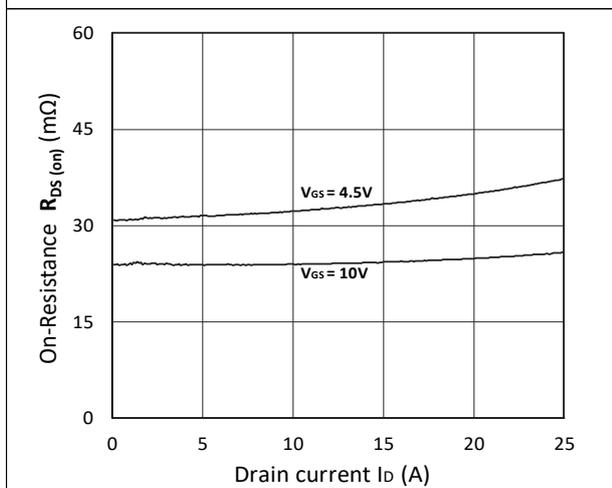


Figure 5.  $R_{DS(ON)}$  vs.  $I_D$

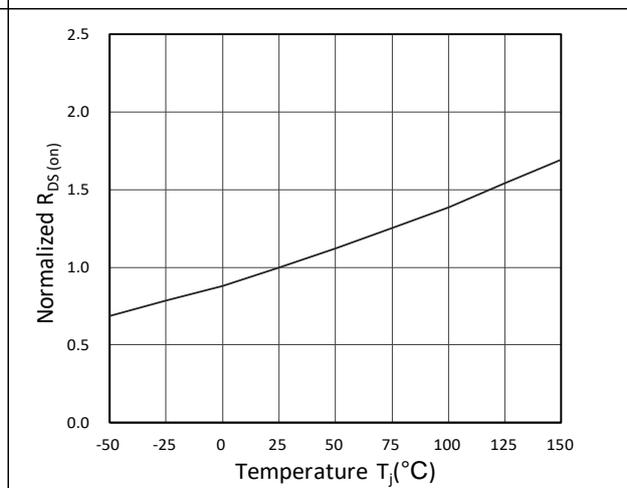


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature

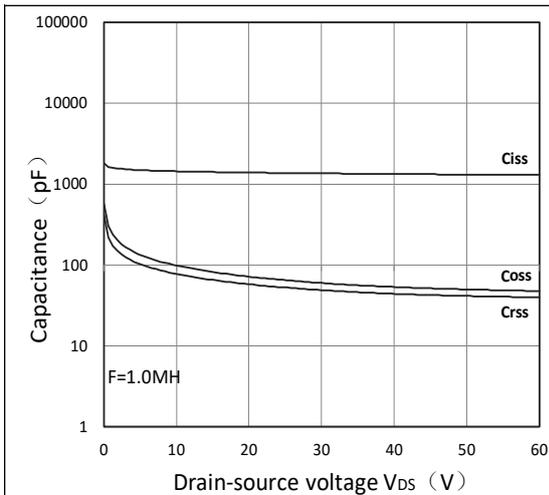


Figure 7. Capacitance Characteristics

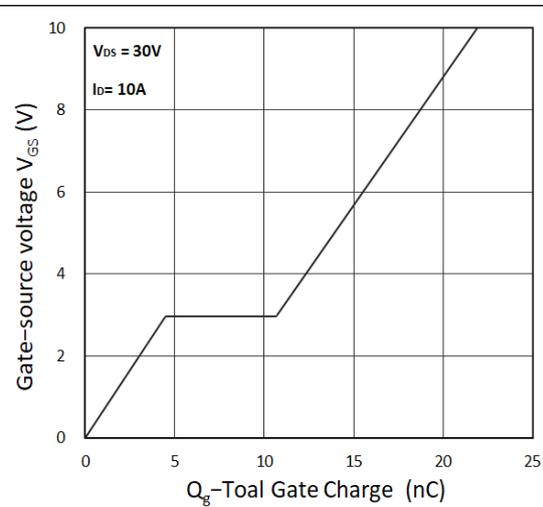


Figure 8. Gate Charge Characteristics

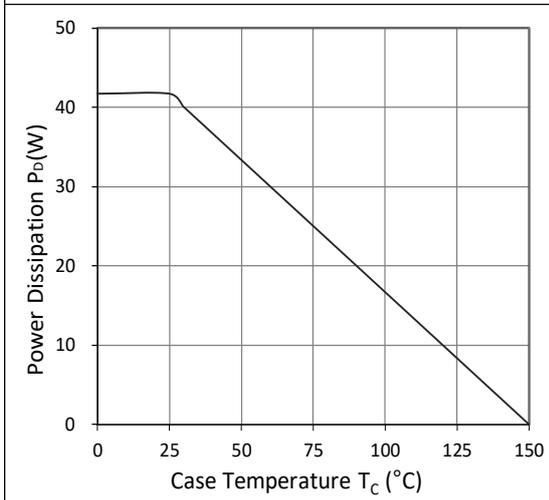


Figure 9. Power Dissipation

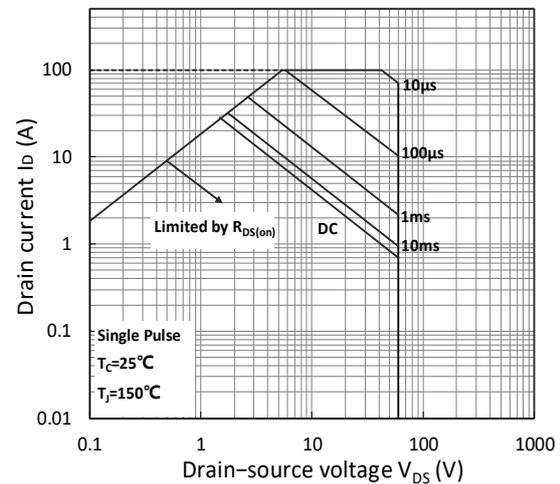


Figure 10. Safe Operating Area

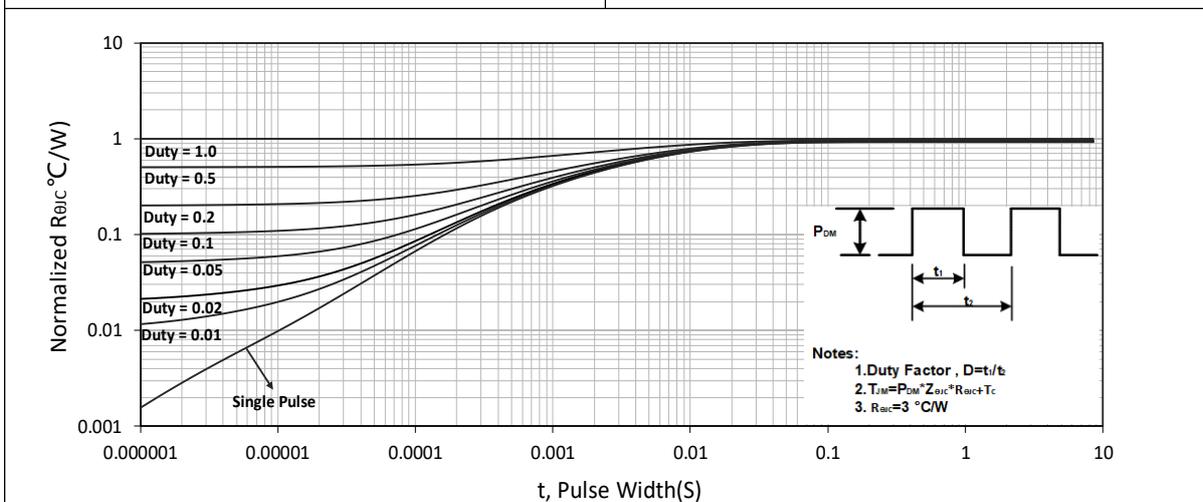
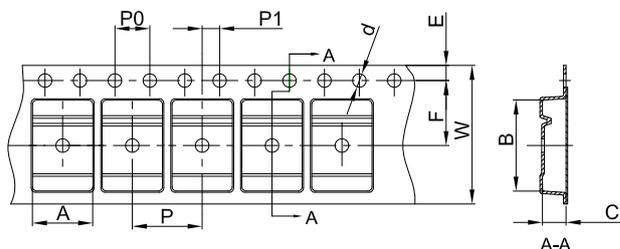


Figure 11. Normalized Maximum Transient Thermal Impedance

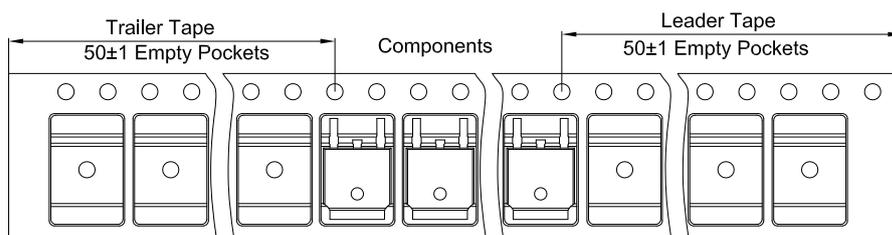
## TO-252-2L Tape and Reel

### TO-252 Embossed Carrier Tape

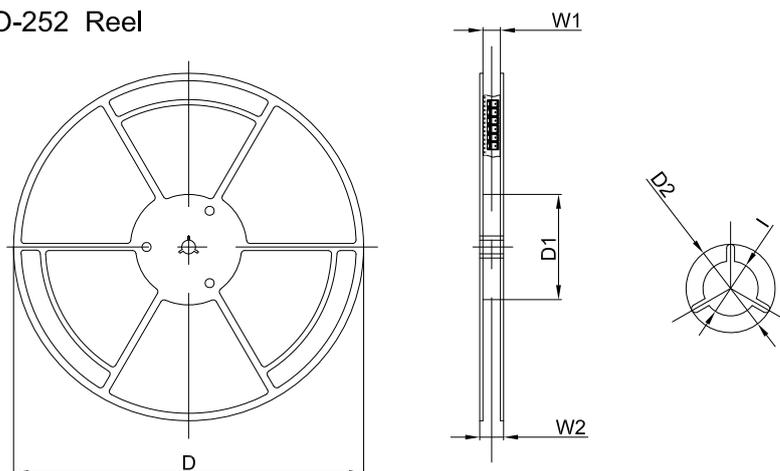


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

### TO-252 Tape Leader and Trailer

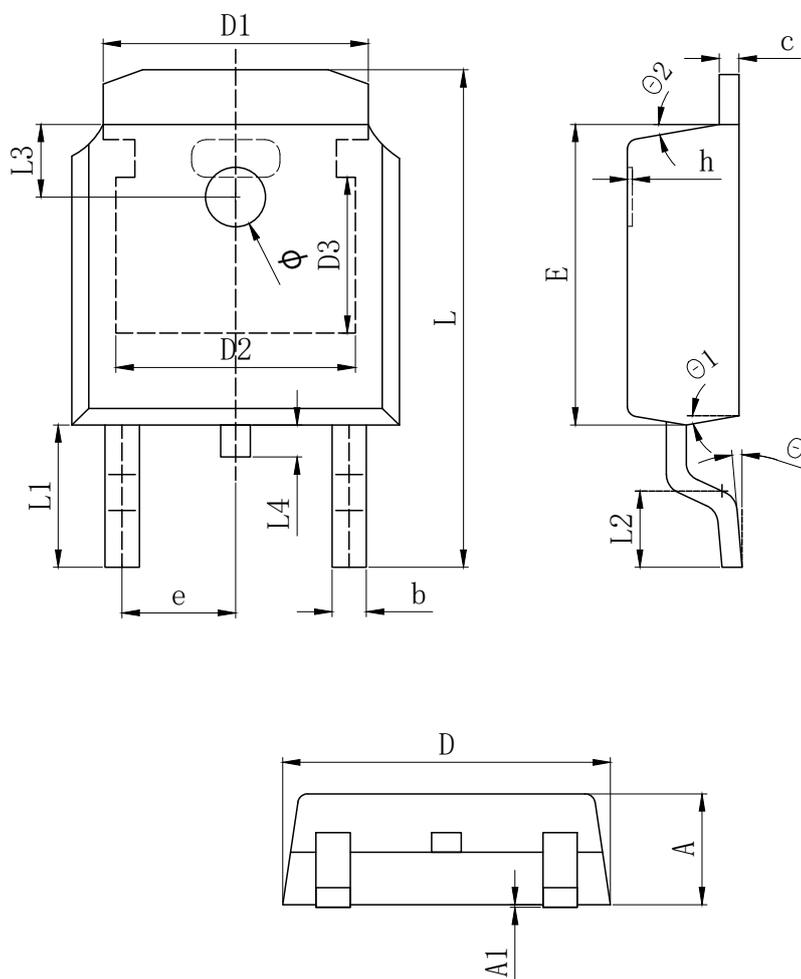


### TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c (电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
$\phi$	1.100	1.200	1.300
$\theta$	0°		8°
$\theta_1$	9° TYP		
$\theta_2$	9° TYP		

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