

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

Product Summary

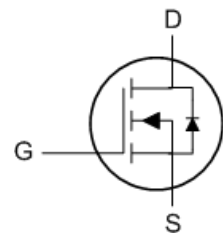
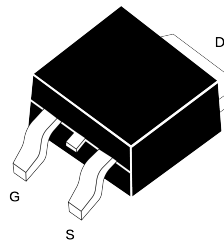


BVDSS	RDSON	ID
60V	25mΩ	20A

Description

The JH20N06 is the high performance complementary N-ch and P-ch MOSFETs with high cell density, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications. The JH20N06 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

TO-252 Pin Configuration



Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units	
V _{DSS}	Drain-Source Voltage	60	V	
V _{GSS}	Gate-Source Voltage	±30	V	
I _D	Continuous Drain Current	T _C = 25°C	20	A
		T _C = 100°C	10	A
I _{DM}	Pulsed Drain Current ^{note1}	80	A	
EAS	Single Pulsed Avalanche Energy ^{note2}	39	mJ	
P _D	Power Dissipation	T _C = 25°C	41.7	W
R _{θJC}	Thermal Resistance, Junction to Case	50	°C/W	
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +175	°C	

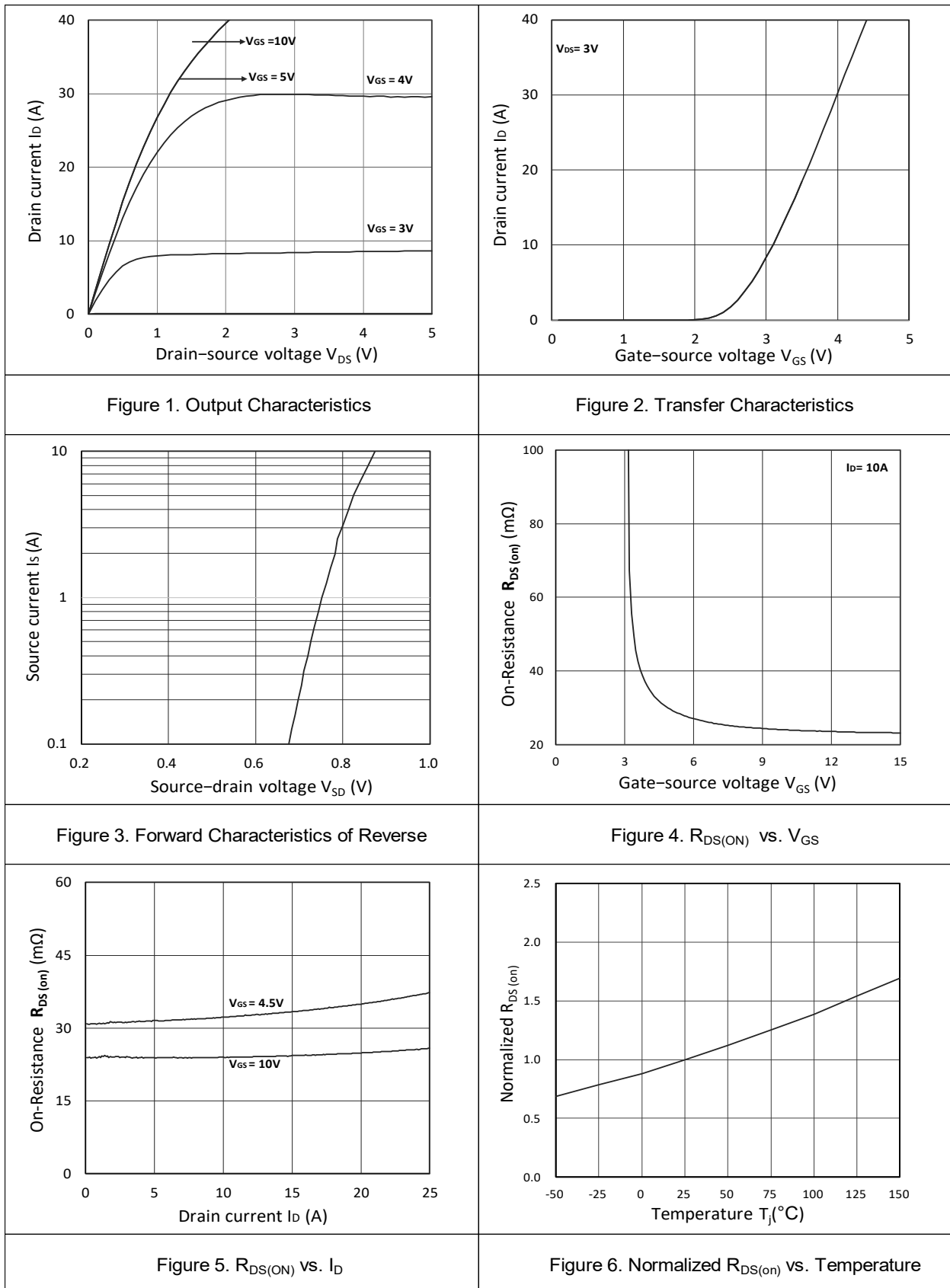
Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60	-	-	V
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA
Zero Gate Voltage Drain Current	$T_J=25^\circ\text{C}$	$V_{DS} = 60V, V_{GS} = 0V$	-	-	1	μA
	$T_J=100^\circ\text{C}$		-	-	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 ⁴	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$	-	25	32	m Ω
		$V_{GS} = 4.5V, I_D = 5A$	-	31.5	40	
Forward Transconductance ⁴	g_{fs}	$V_{DS} = 5V, I_D = 10A$	-	15.5	-	S
Dynamic Characteristics⁵						
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$	-	1355	-	μF
Output Capacitance	C_{oss}		-	60	-	
Reverse Transfer Capacitance	C_{rss}		-	49	-	
Gate Resistance	R_G	$f = 1MHz$	-	1.2	-	Ω
Switching Characteristics⁵						
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
Drain-Source Body Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$I_S = 10A, V_{GS} = 0V$	-	-	1.2	V
Continuous Source Current	$T_C=25^\circ\text{C}$	I_S	-	-	20	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 inch² 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



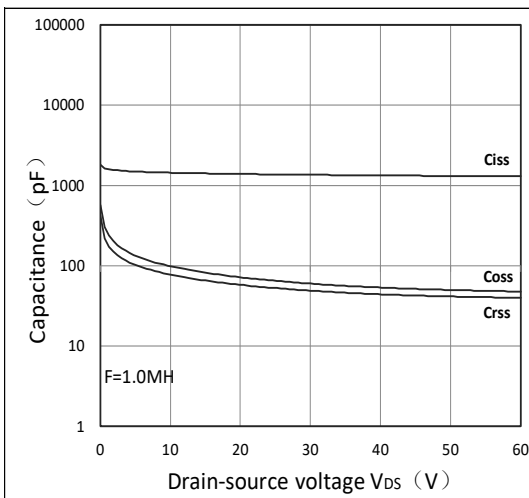


Figure 7. Capacitance Characteristics

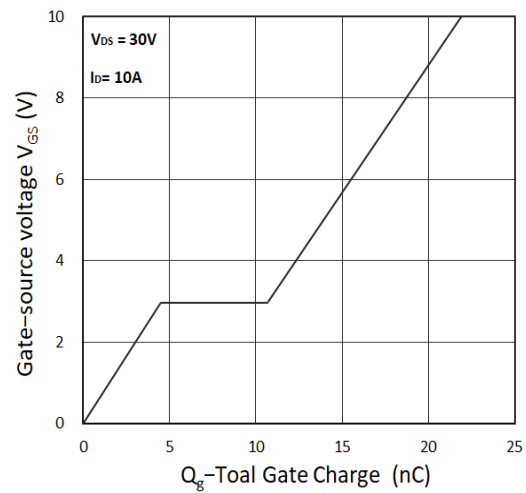


Figure 8. Gate Charge Characteristics

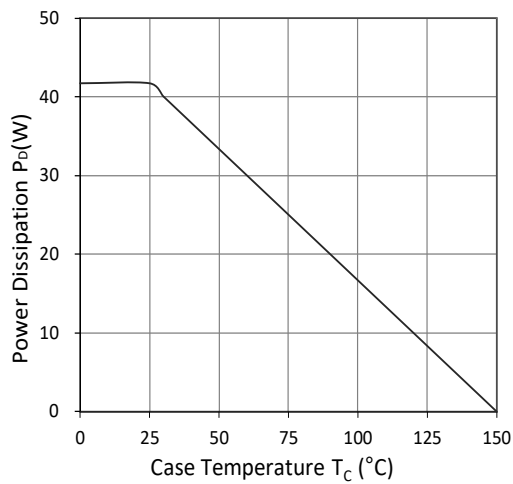


Figure 9. Power Dissipation

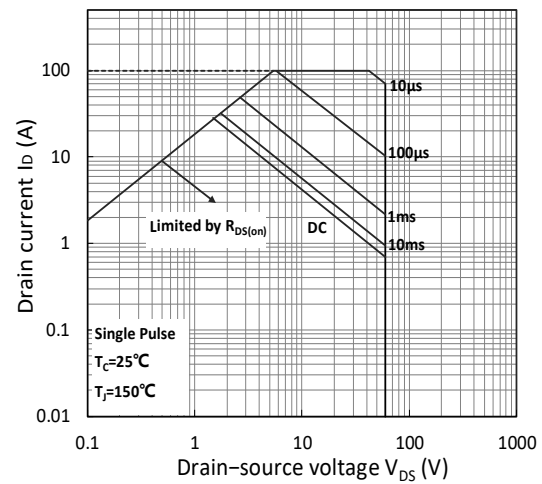


Figure 10. Safe Operating Area

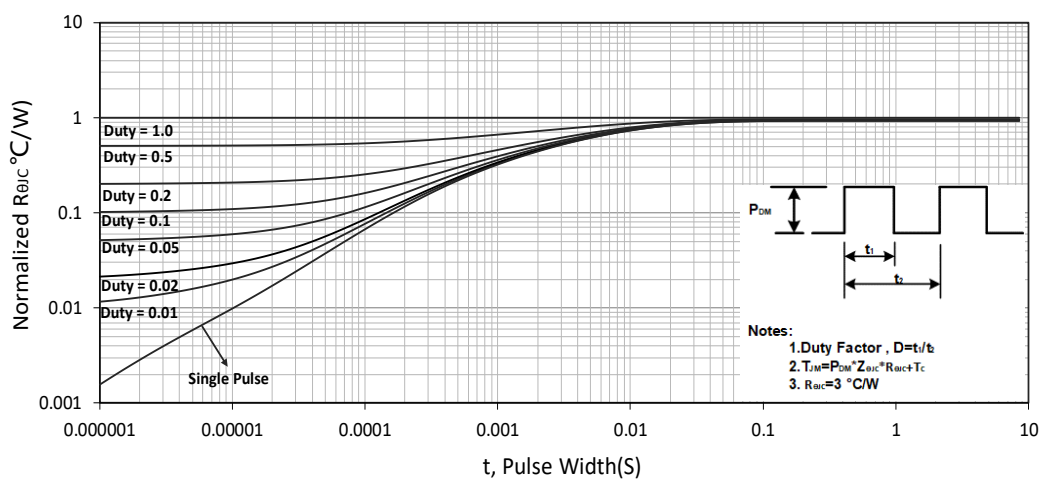
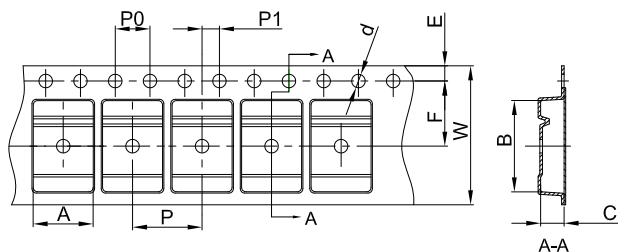


Figure 11. Normalized Maximum Transient Thermal Impedance

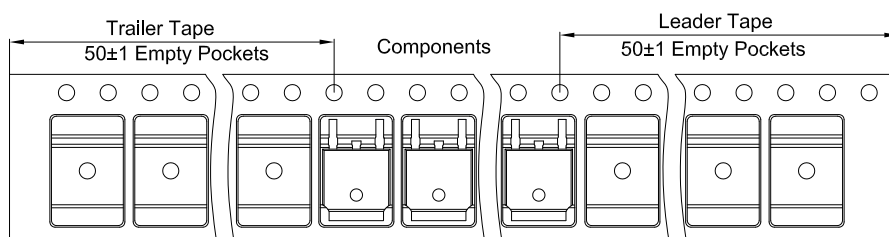
TO-252-2L Tape and Reel

TO-252 Embossed Carrier Tape

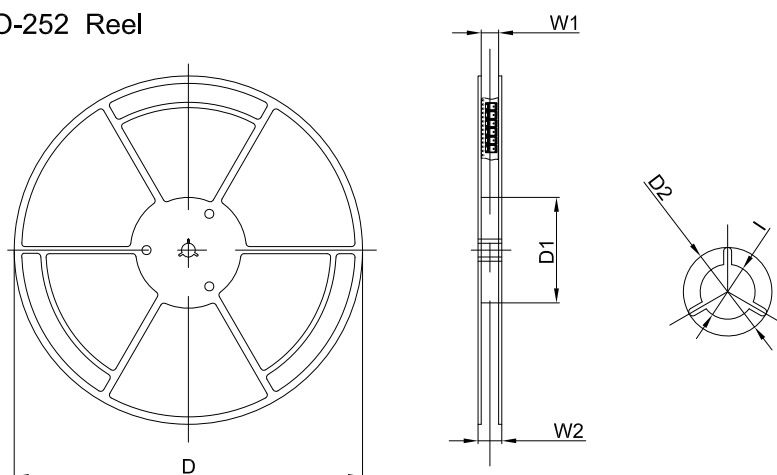


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252 Tape Leader and Trailer

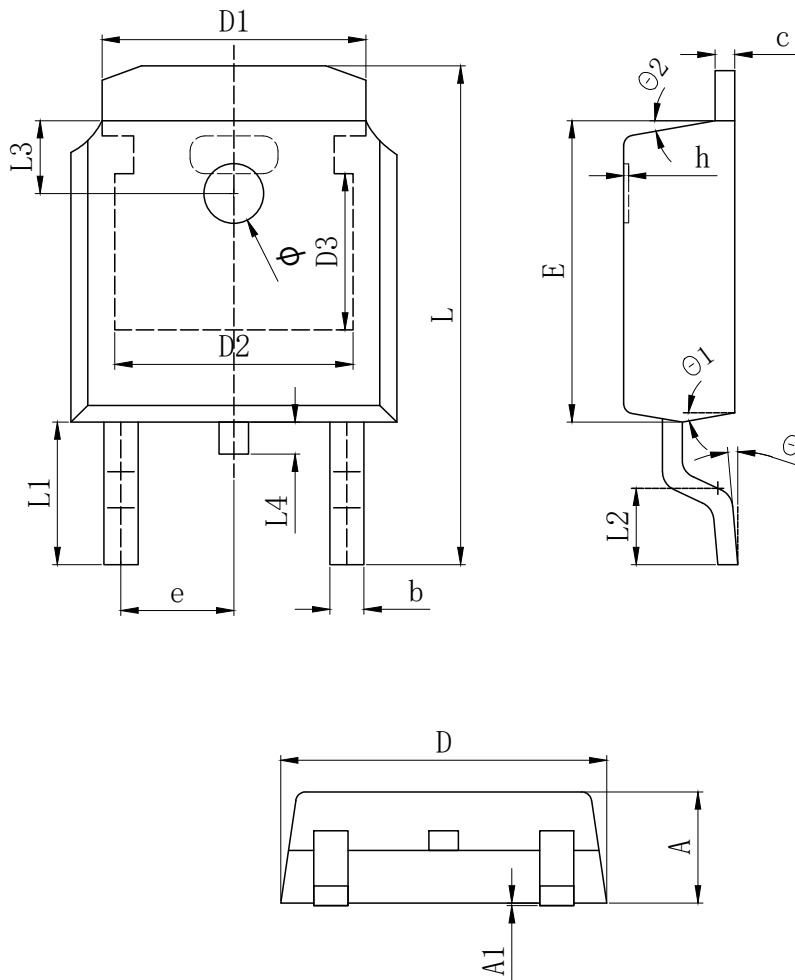


TO-252 Reel



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
Φ	1.100	1.200	1.300
θ	0°		8°
θ 1	9° TYP		
θ 2	9° TYP		

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