Lastinght

JH2302V

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

Product Summary

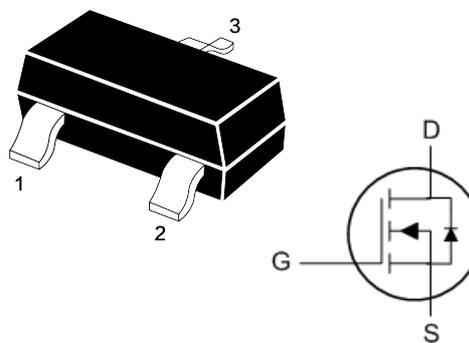| BVDSS	RDSON	ID
20V	45 mΩ	3.0 A

Description

The JH2302V is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.
The JH2302V meet the RoHS and Green Product requirement with full function reliability approved.

SOT-23 Pin Configuration

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	2 0	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_A=25°C$	Continuous Drain Current, V_{GS} @ 10V[1]	3.0	A
$I_D@T_A=70°C$	Continuous Drain Current, V_{GS} @ 10V[1]	1.2	A
I_{DM}	Pulsed Drain Current[2]	12	A
$P_D@T_A=25°C$	Total Power Dissipation[3]	0.85	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient [1]	---	162	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	---	°C/W

Electrical Characteristics (T$_J$=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V$_{(BR)DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V,I$_D$=250µA	20	-	-	V
I$_{DSS}$	Zero Gate Voltage Drain Current	V$_{DS}$ =20V, V$_{GS}$ = 0V,	-	-	1.0	µA
I$_{GSS}$	Gate to Body Leakage Current	V$_{DS}$ =0V,V$_{GS}$ = ±12V	-	-	±100	nA
On Characteristics						
V$_{GS(th)}$	Gate Threshold Voltage	V$_{DS}$= V$_{GS}$, I$_D$=250µA	0.4	0.7	1.0	V
R$_{DS(on)}$	Static Drain-Source on-Resistance note2	V$_{GS}$ =4.5V, I$_D$ =3A	-	45	55	mΩ
		V$_{GS}$ =2.5V, I$_D$ =2A	-	62	85	
Dynamic Characteristics						
C$_{iss}$	Input Capacitance	V$_{DS}$ =10V, V$_{GS}$ =0V, f = 1.0MHz	-	184	-	pF
C$_{oss}$	Output Capacitance		-	38	-	pF
C$_{rss}$	Reverse Transfer Capacitance		-	28	-	pF
Q$_g$	Total Gate Charge	V$_{DS}$ =10V, I$_D$ =3A, V$_{GS}$ =4.5V	-	2.7	-	nC
Q$_{gs}$	Gate-Source Charge		-	0.4	-	nC
Q$_{gd}$	Gate-Drain("Miller") Charge		-	0.5	-	nC
Switching Characteristics						
t$_{d(on)}$	Turn-on Delay Time	V$_{DS}$=10V,I$_D$=3A, R$_{GEN}$=3Ω, V$_{GS}$ =4.5V	-	8	-	ns
t$_r$	Turn-on Rise Time		-	27	-	ns
t$_{d(off)}$	Turn-off Delay Time		-	26	-	ns
t$_f$	Turn-off Fall Time		-	33	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I$_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	3	A
I$_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	12	A
V$_{SD}$	Drain to Source Diode Forward Voltage	V$_{GS}$ = 0V, I$_S$=3A	-	-	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300µs, Duty Cycle≤0.5%

Typical Performance Characteristics
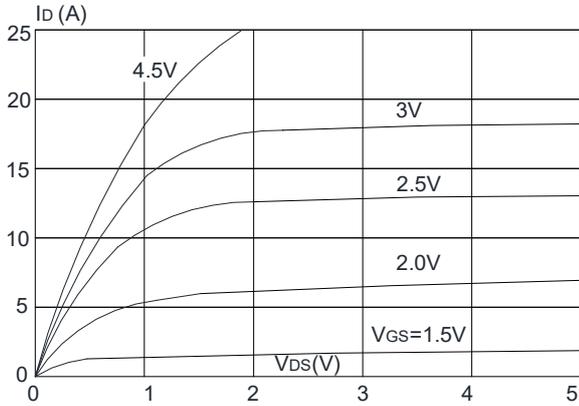
Figure1: Output Characteristics
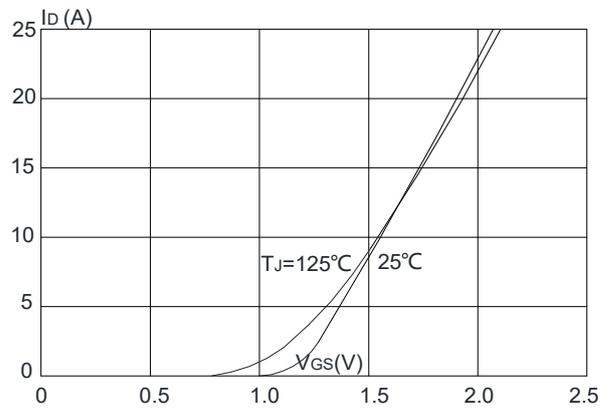

Figure 2: Typical Transfer Characteristics

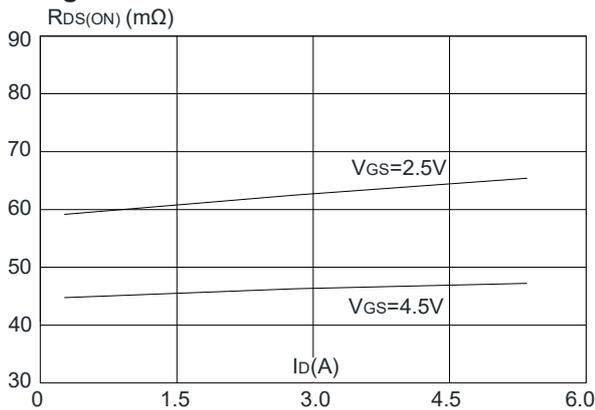**Figure 3:** On-resistance vs. Drain Current

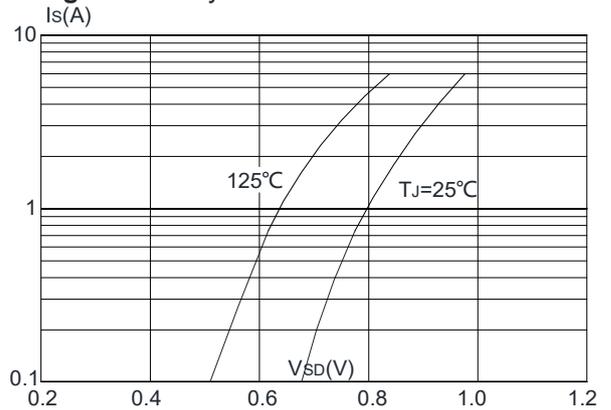**Figure 4:** Body Diode Characteristics

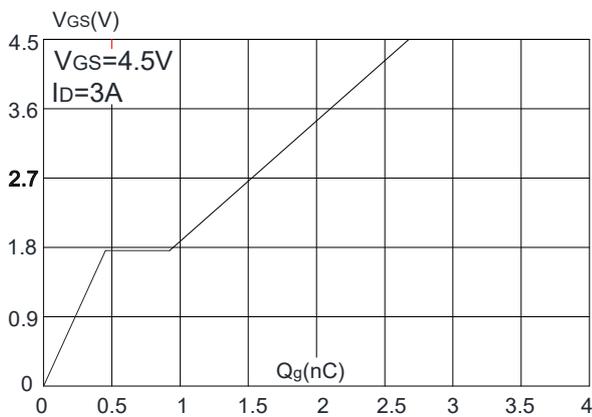**Figure 5:** Gate Charge Characteristics

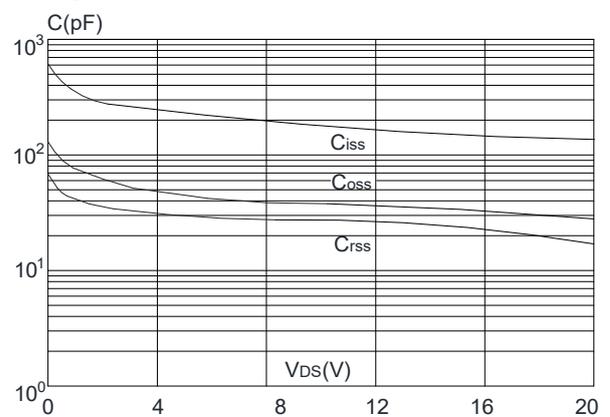**Figure 6:** Capacitance Characteristics

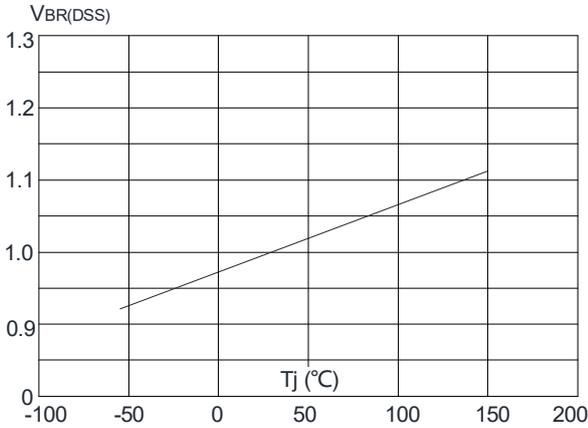**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature

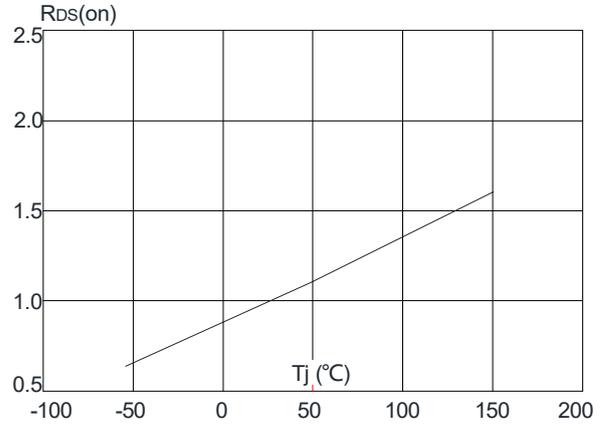**Figure 8:** Normalized on Resistance vs. Junction Temperature
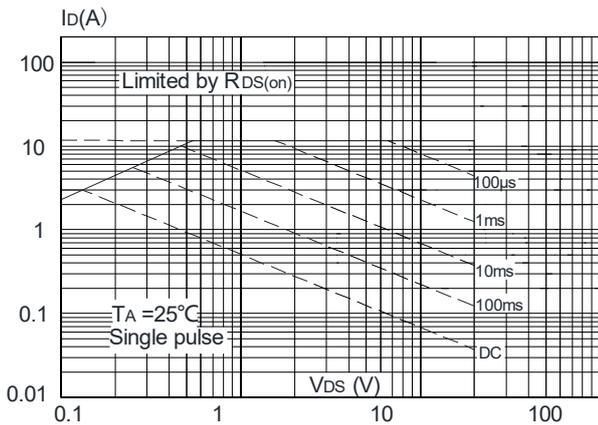

Figure 9: Maximum Safe Operating Area

Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature
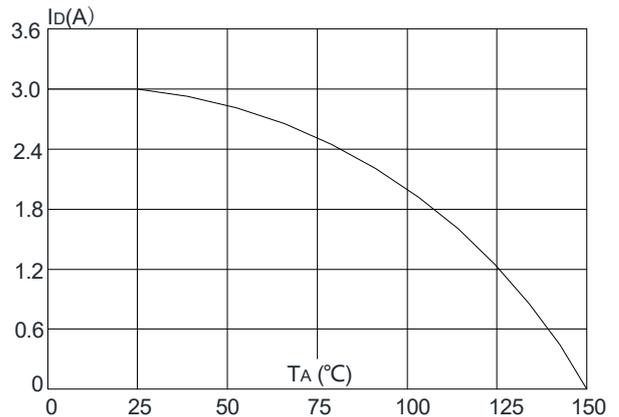
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

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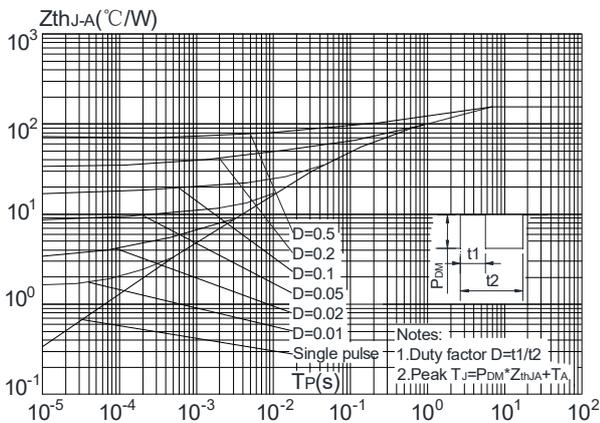
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape
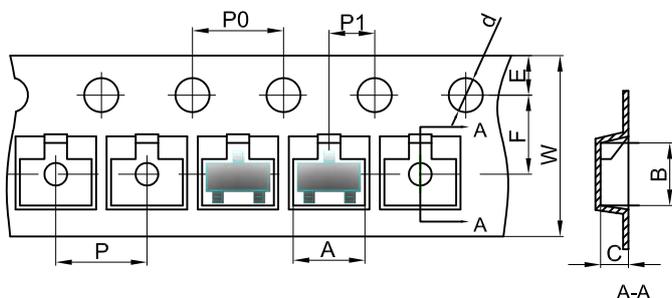
| Dimensions are in millimeter									
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

Trailer Tape
50±2 Empty Pockets

Components

Leader Tape
100±2 Empty Pockets
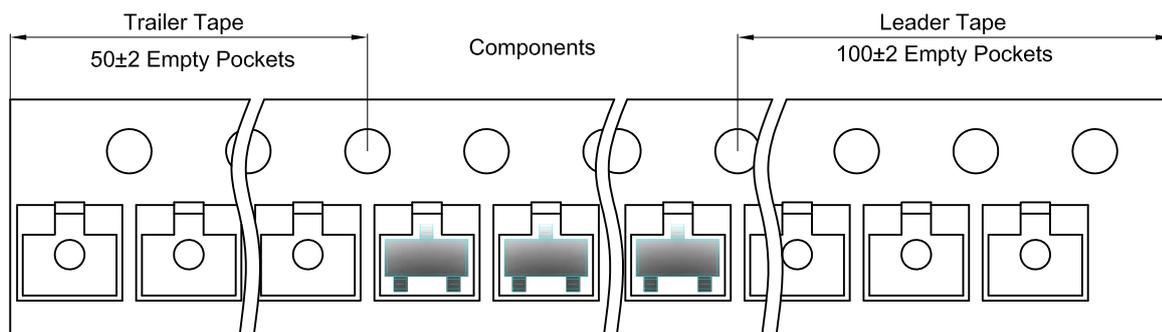
SOT-23 Reel
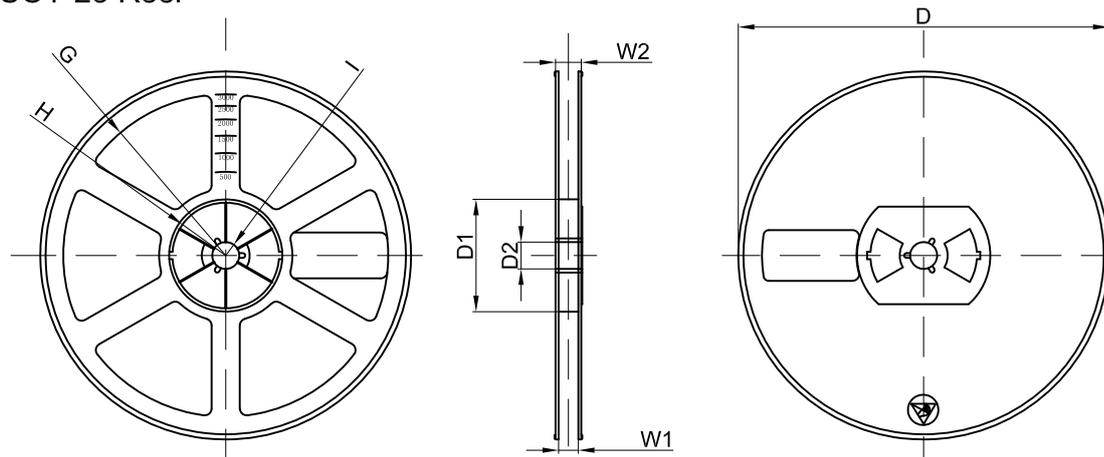
Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	
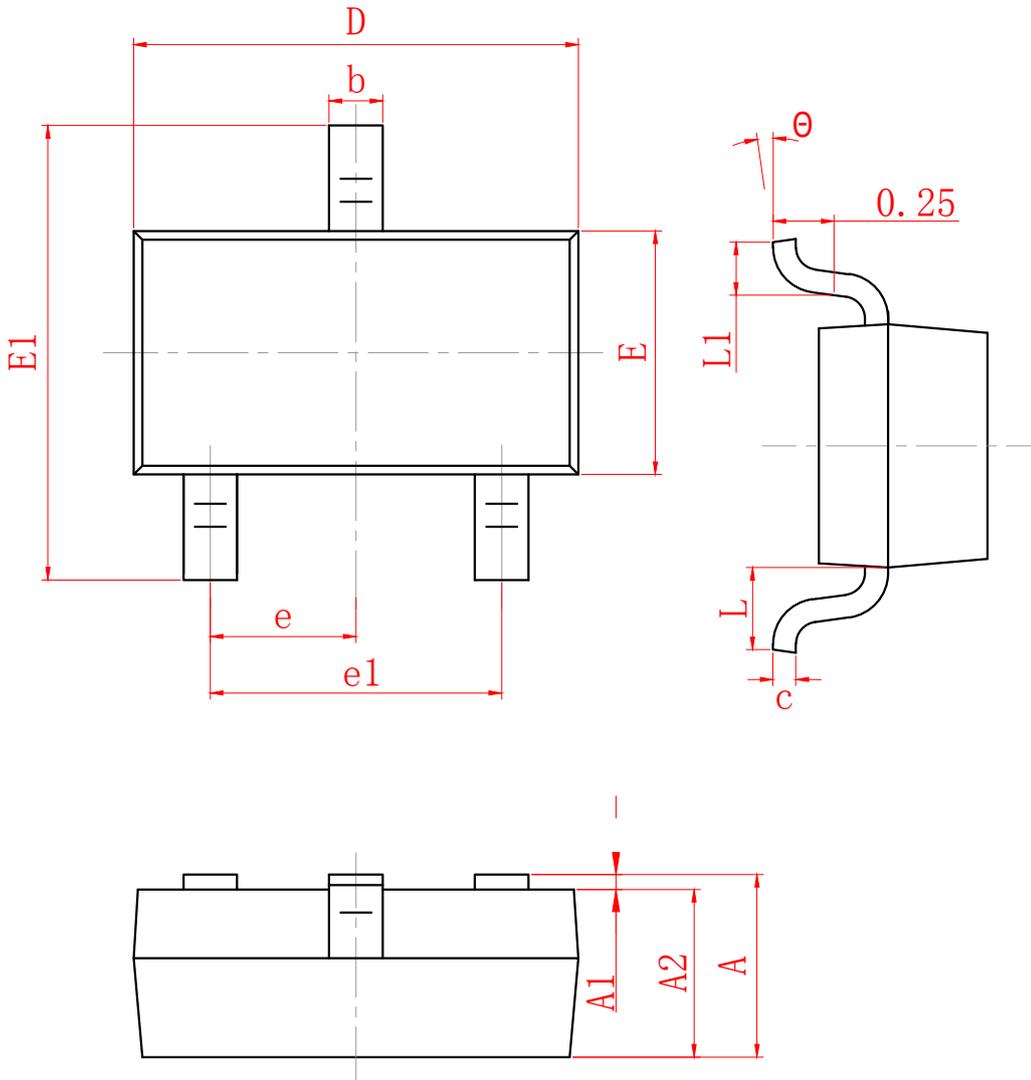
SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
θ	0°	8°

DISCLAIMER