

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

Product Summary



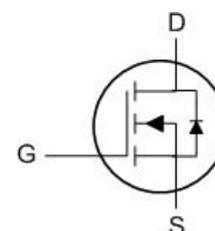
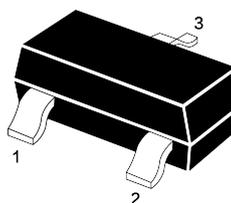
BVDSS	RDS(on)	ID
60V	40mΩ	5 A

Description

The JH6005 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 JH6005 meet the RoHS and Green Product

SOT-23-3L 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	±20	V
I _D	Continuous Drain Current	T _C = 25°C	5
		T _C = 100°C	3.8
I _{DM}	Pulsed Drain Current ^{note1}	30	A
EAS	Single Pulsed Avalanche Energy ^{note2}		mJ
P _D	Power Dissipation	T _C = 25°C	3
R _{θJC}	Thermal Resistance, Junction to Case	73	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +175	°C

Electrical Characteristics (T_J=25°C 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	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note3</small>	V _{GS} =10V, I _D =15A	-	40	49	mΩ
		V _{GS} =4.5V, I _D =10A	-	45	63	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	825	-	pF
C _{oss}	Output Capacitance		-	49	-	pF
C _{rss}	Reverse Transfer Capacitance		-	41	-	pF
Q _g	Total Gate Charge	V _{DS} =30V, I _D =4.5A, V _{GS} =10V	-	14	-	nC
Q _{gs}	Gate-Source Charge		-	2.9	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	5.2	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =30V, I _D =2A, R _L =6.7Ω, R _G =3Ω, V _{GS} =10V	-	5	-	ns
t _r	Turn-on Rise Time		-	2.6	-	ns
t _{d(off)}	Turn-off Delay Time		-	16.1	-	ns
t _f	Turn-off Fall Time		-	2.3	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	30	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =15A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	T _J =25°C, I _F =15A, dI/dt=100A/μs	-	35	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	53	-	nC

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

2. EAS condition : T_J=25°C, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=6.1A

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

Typical Performance Characteristics

Figure 1: Output Characteristics

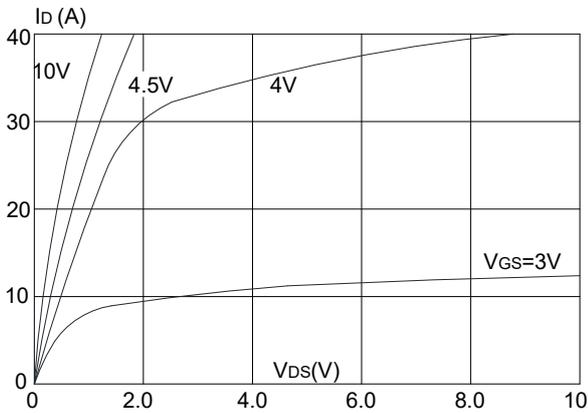


Figure 2: Typical Transfer Characteristics

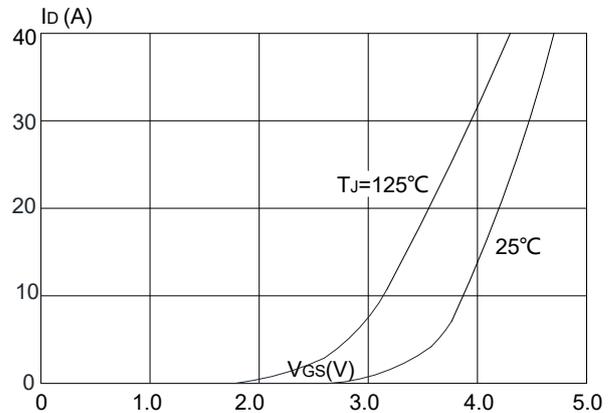


Figure 3: On-resistance vs. Drain Current

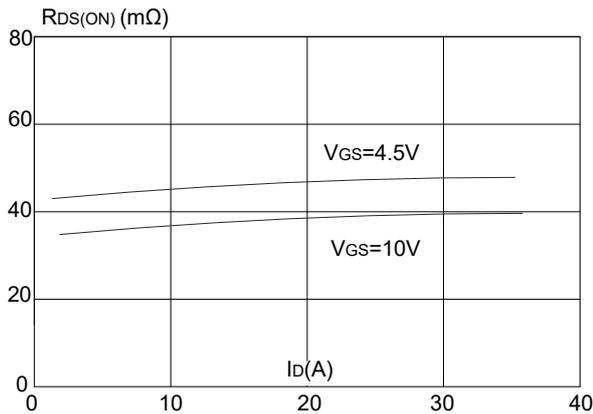


Figure 4: Body Diode Characteristics

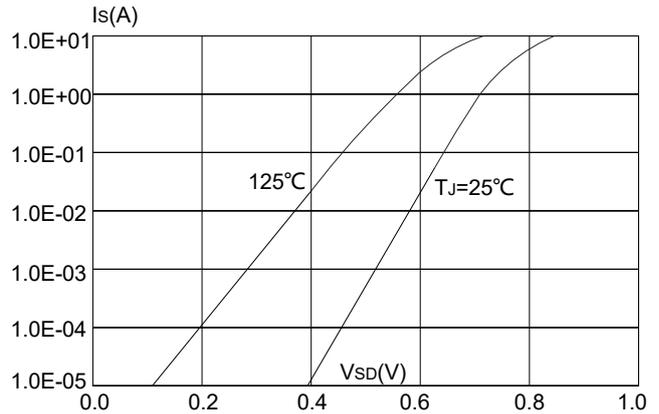


Figure 5: Gate Charge Characteristics

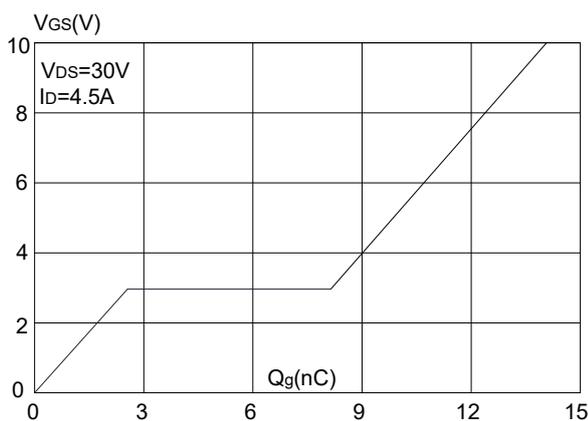


Figure 6: Capacitance Characteristics

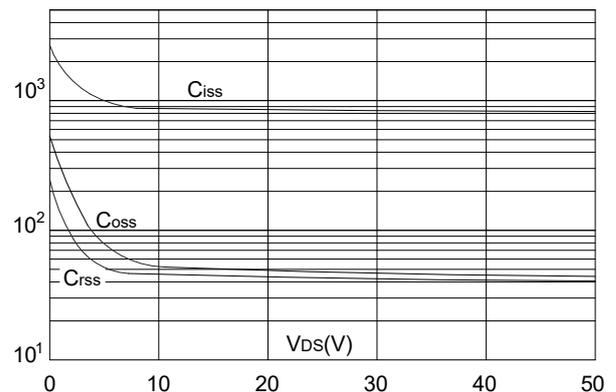


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

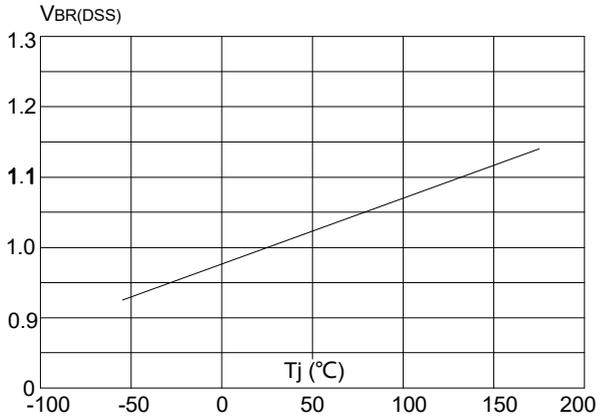


Figure 8: Normalized on Resistance vs. Junction Temperature

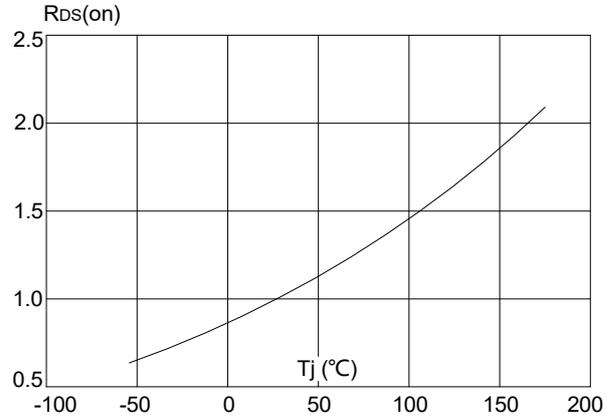


Figure 9: Maximum Safe Operating Area

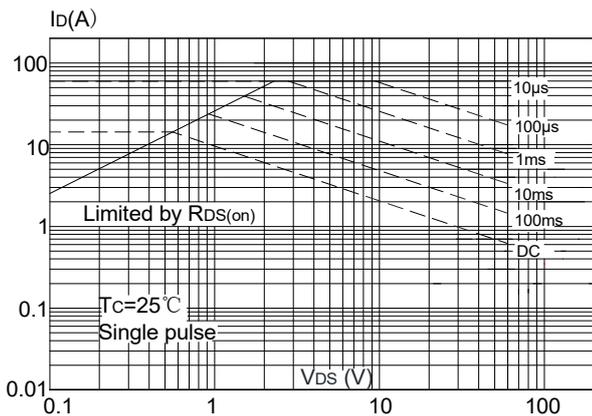


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

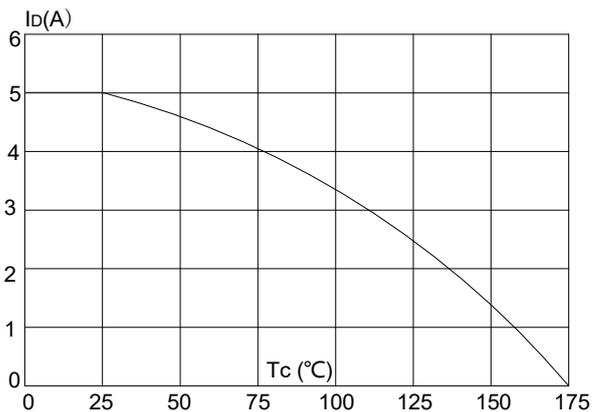
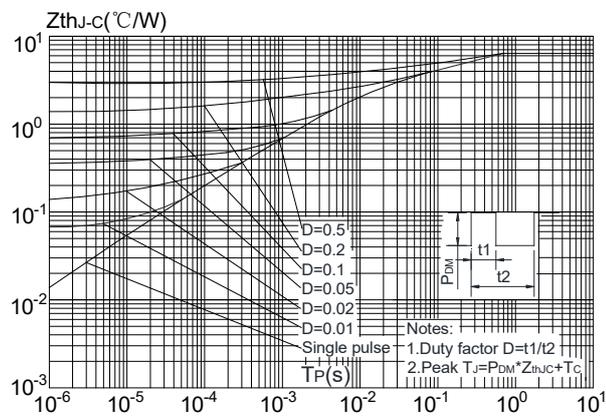
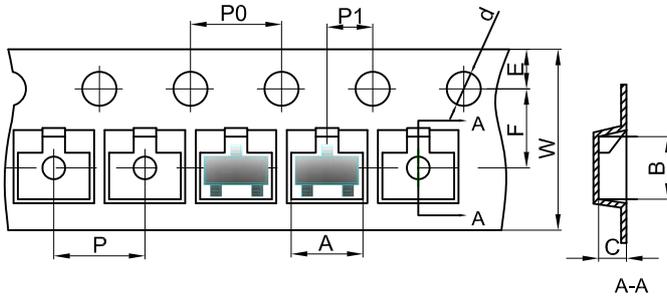


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



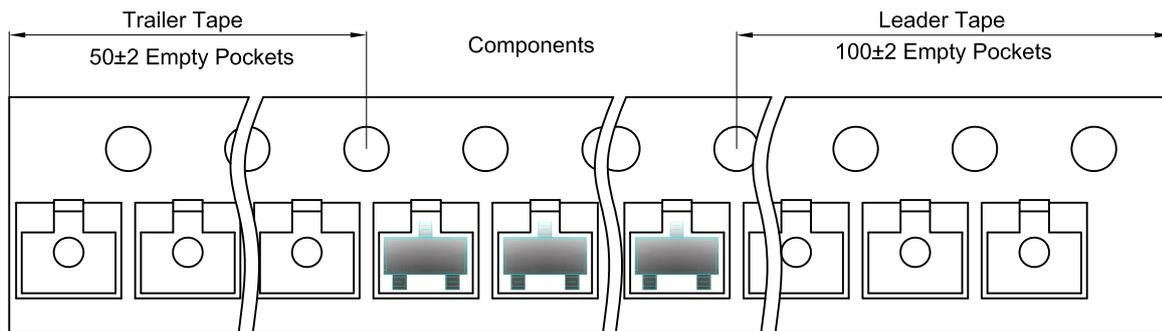
SOT-23-3L Tape and Reel

SOT-23-3L Embossed Carrier Tape

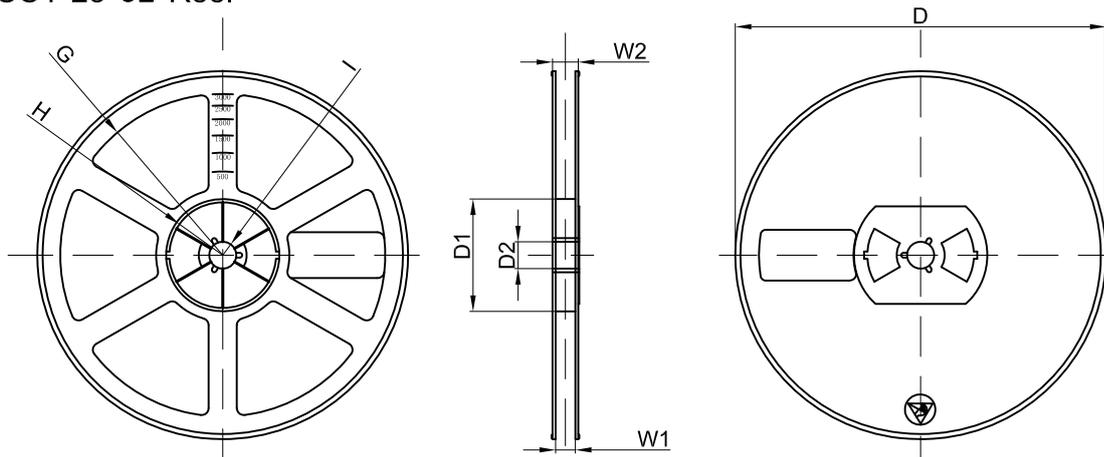


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-3L Tape Leader and Trailer

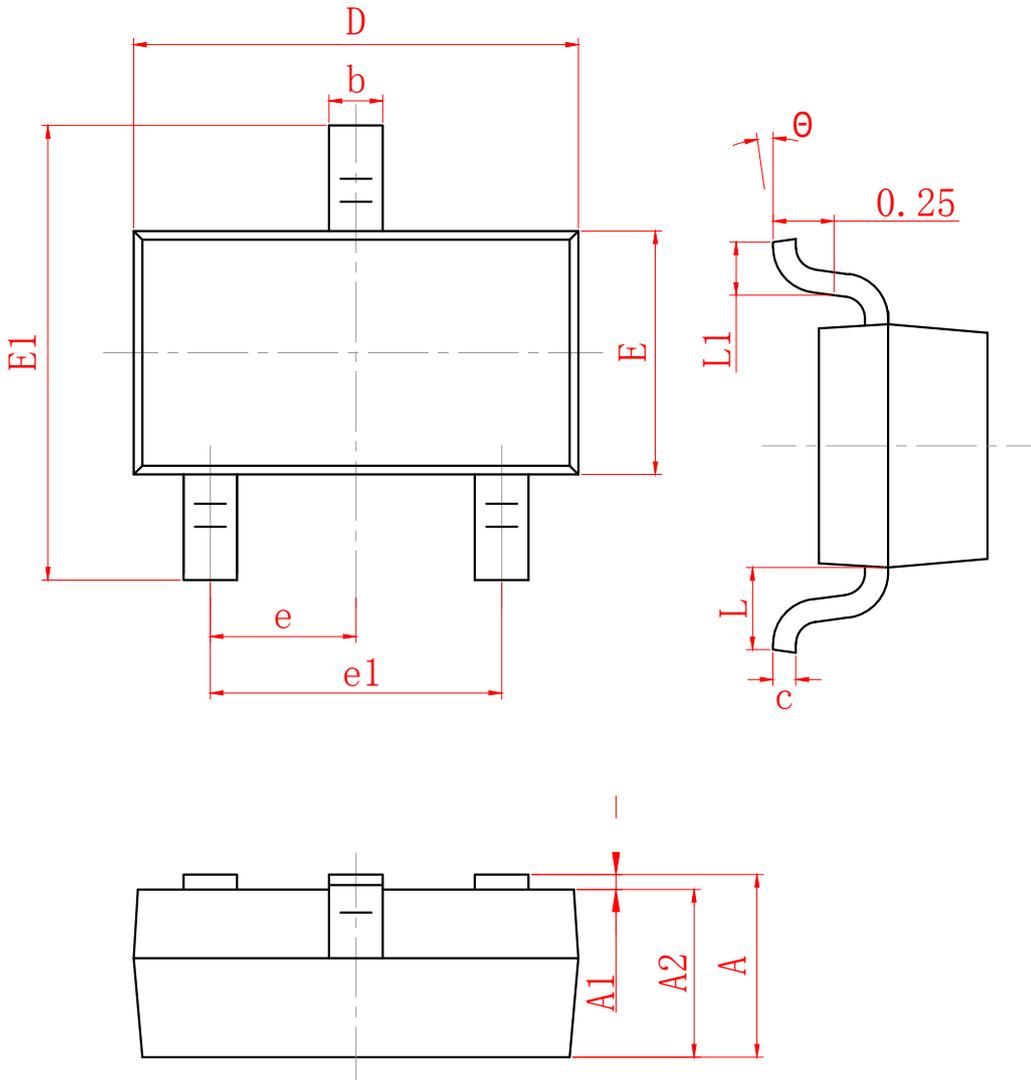


SOT-23-3L Reel



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°

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