

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

Product Summary

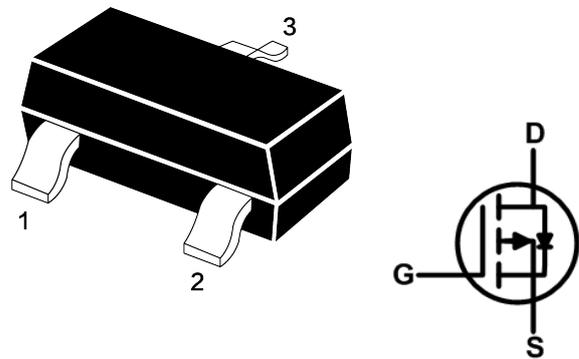


BVDSS	R _{DS(on)}	I _D
-30V	42mΩ	-4.5A

Description

The JH3401A is the high cell density trenched P-ch MOSFETs, which provides excellent R_{DS(on)} and efficiency for most of the small power switching and load switch applications. The JH3401A meet the RoHS and Green Product requirement with full function reliability approved.

SOT-23 Pin Configurations



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-30	V
V _{GS}	Gate-Source Voltage	±12	V
I _D @T _A =25°C	Continuous Drain Current	-4.5	A
I _D @T _A =70°C	Continuous Drain Current	-3.6	A
I _{DM}	Pulsed Drain Current ²	-16	A
P _D @T _A =25°C	Total Power Dissipation ³	1.4	W
P _D @T _A =70°C	Total Power Dissipation ³	0.9	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 _{θJA}	Thermal Resistance Junction-Ambient ¹	---	105	°C/W
R _{θJA}	Thermal Resistance Junction-Ambient ¹ (t ≤ 10s)	---	---	°C/W

Electrical Characteristics (T_J=25°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 = -250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V	-	-	±100	nA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.7	-1	-1.3	V
Drain-Source on-Resistance ³	R _{DS(on)}	V _{GS} = -10V, I _D = -4.2A	-	42	60	mΩ
		V _{GS} = -4.5V, I _D = -4A	-	52	75	
		V _{GS} = -2.5V, I _D = -1A	-	60	90	
Dynamic Characteristics⁴						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz	-	745	-	pF
Output Capacitance	C _{oss}		-	70	-	
Reverse Transfer Capacitance	C _{rss}		-	57	-	
Switching Characteristics⁴						
Total Gate Charge	Q _g	V _{GS} = -4.5V, V _{DS} = -15V, I _D = -4.2A	-	8	-	nC
Gate-Source Charge	Q _{gs}		-	1.8	-	
Gate-Drain Charge	Q _{gd}		-	2.7	-	
Turn-on Delay Time	t _{d(on)}	V _{GS} = -10V, V _{DD} = -15V, I _D = -4.2A, R _{GEN} = 6Ω	-	7	-	ns
Rise Time	t _r		-	3	-	
Turn-off Delay Time	t _{d(off)}		-	30	-	
Fall Time	t _f		-	12	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	I _S = -4.2A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current	I _S		-	-	-4.2	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C
2. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

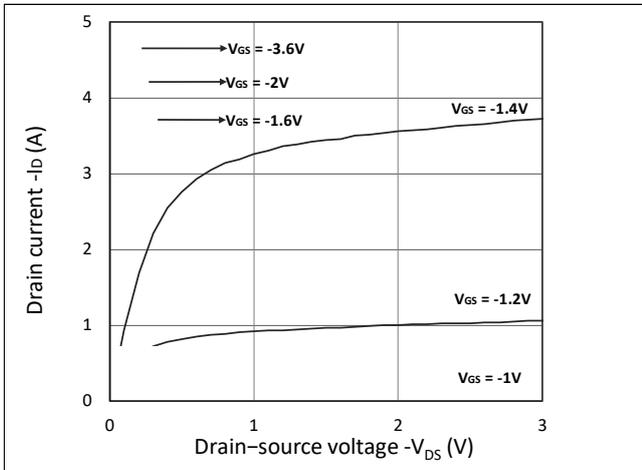


Figure 1. Output Characteristics

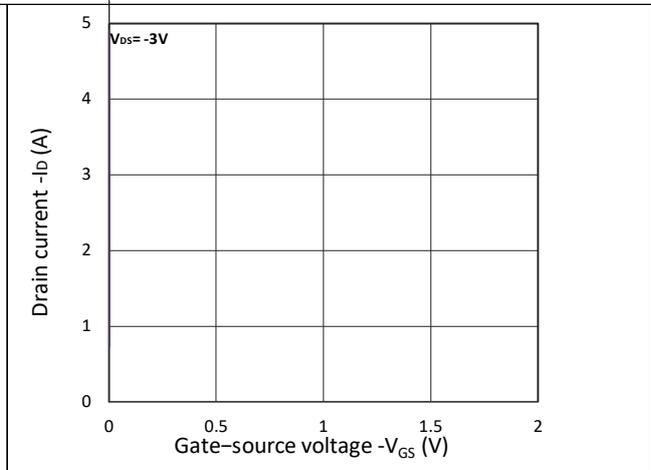


Figure 2. Transfer Characteristics

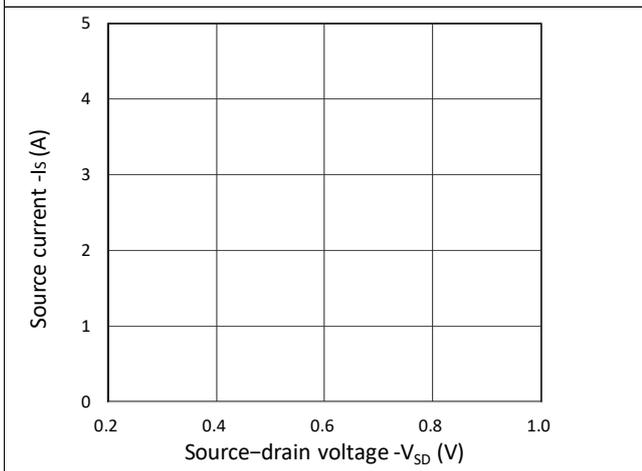


Figure 3. Forward Characteristics of Reverse

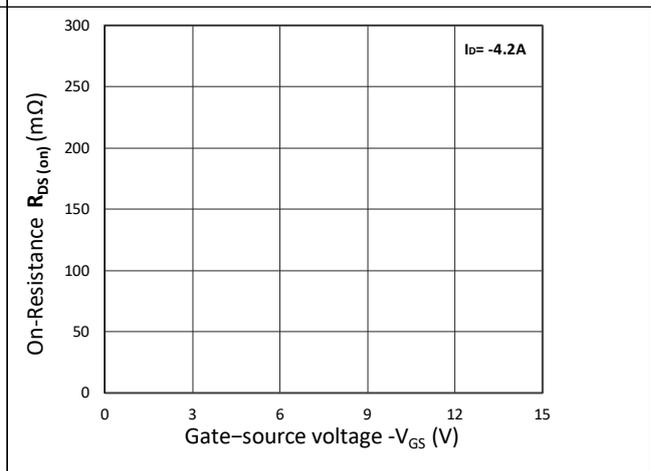


Figure 4. $R_{DS(on)}$ vs. V_{GS}

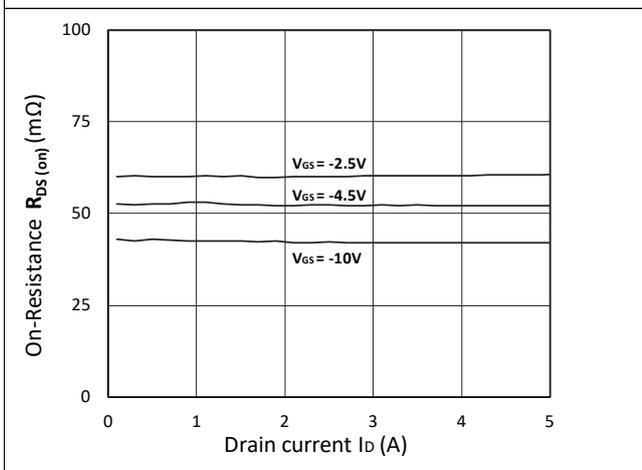


Figure 5. $R_{DS(on)}$ vs. I_D

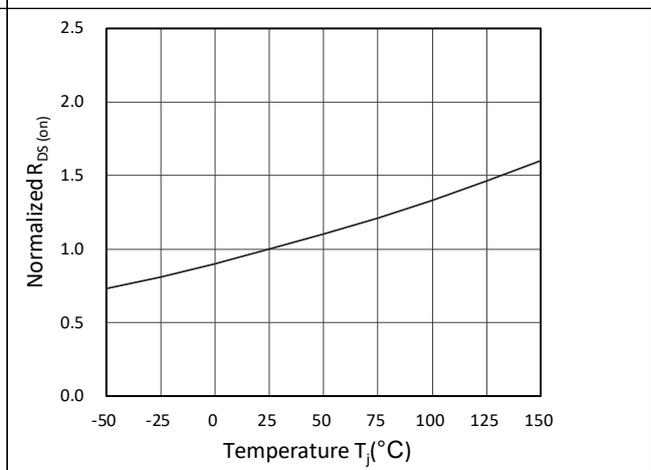


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

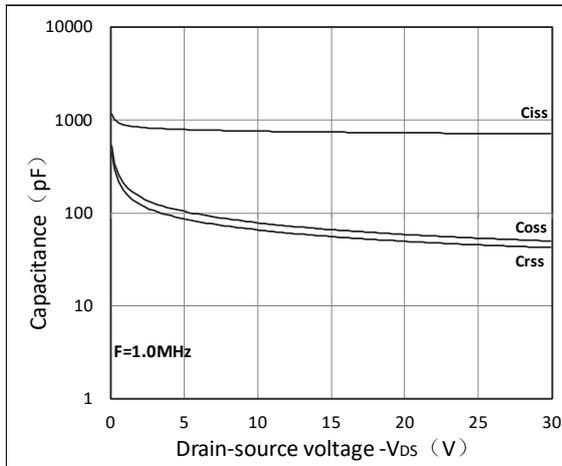


Figure 7. Capacitance Characteristics

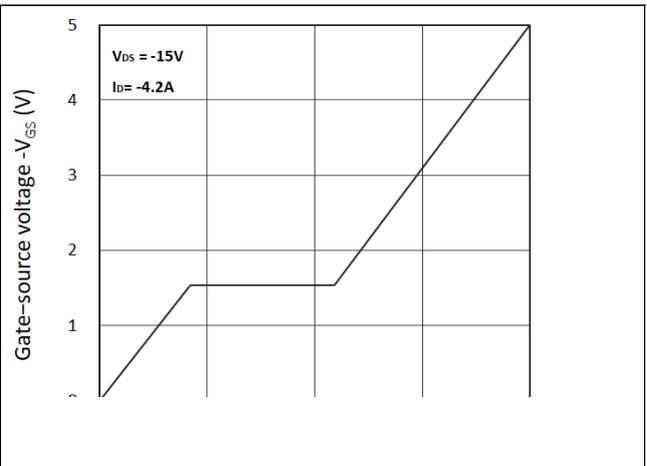


Figure 8. Gate Charge Characteristics

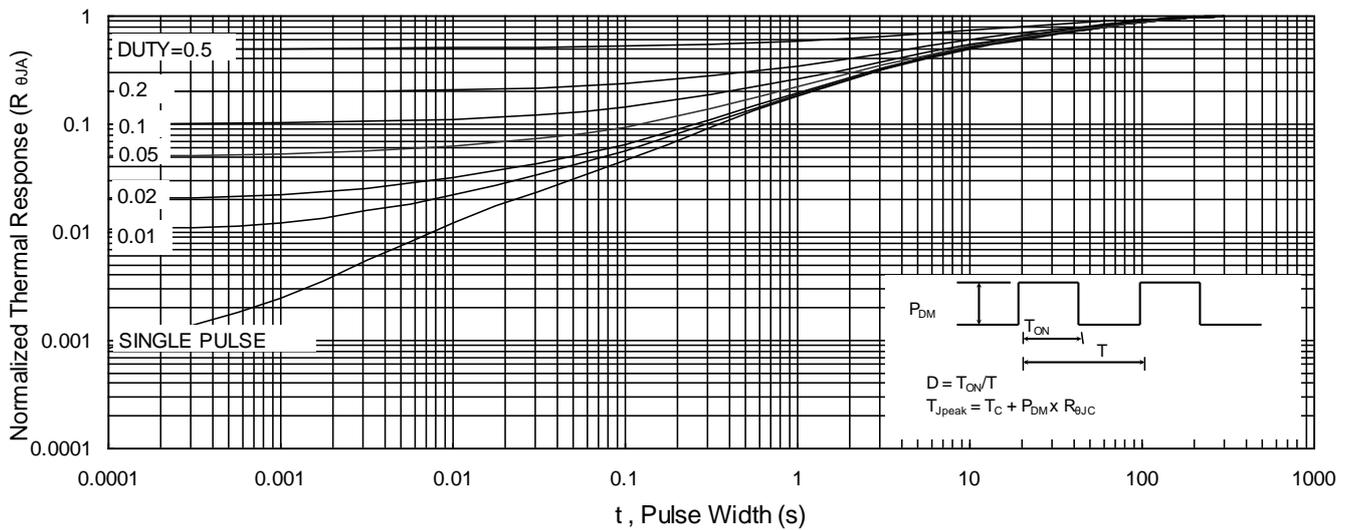
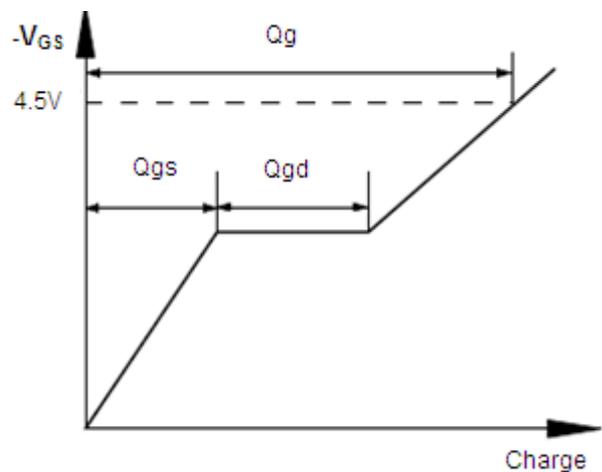
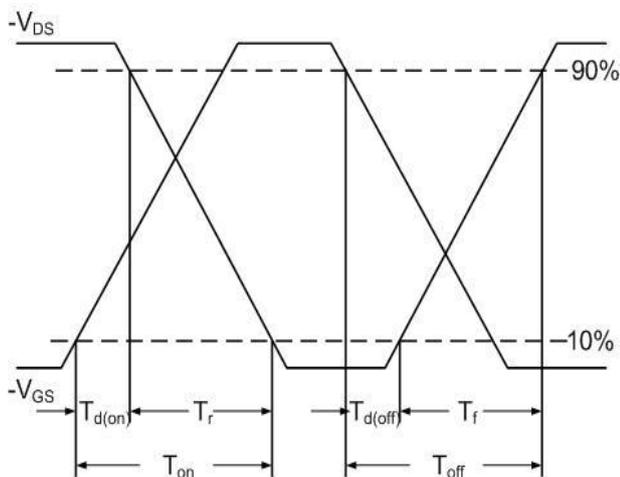
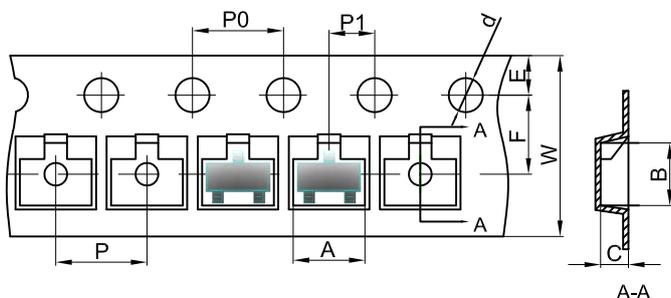


Fig.9 Normalized Maximum Transient Thermal Impedance



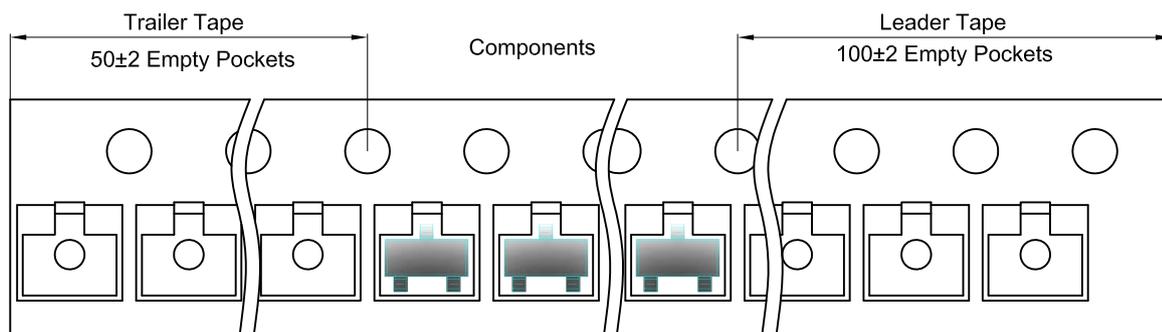
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

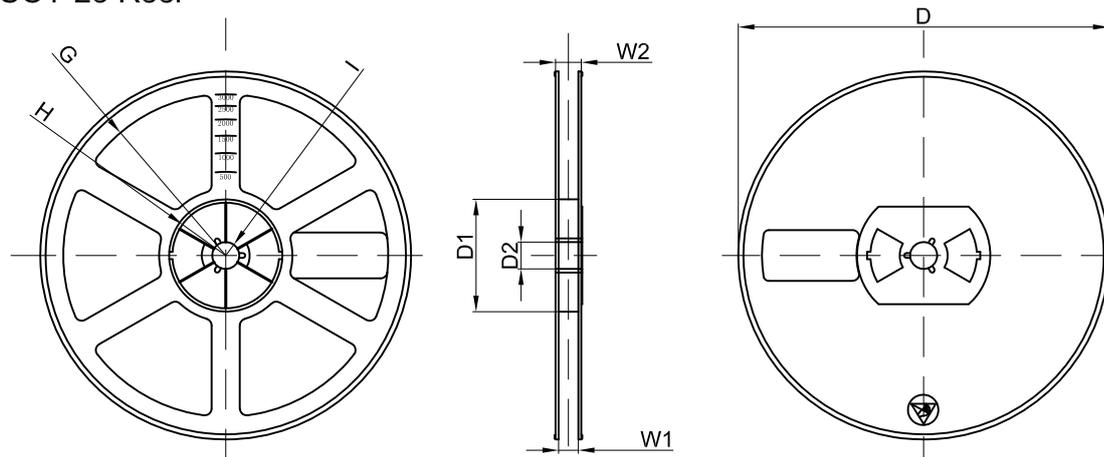


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

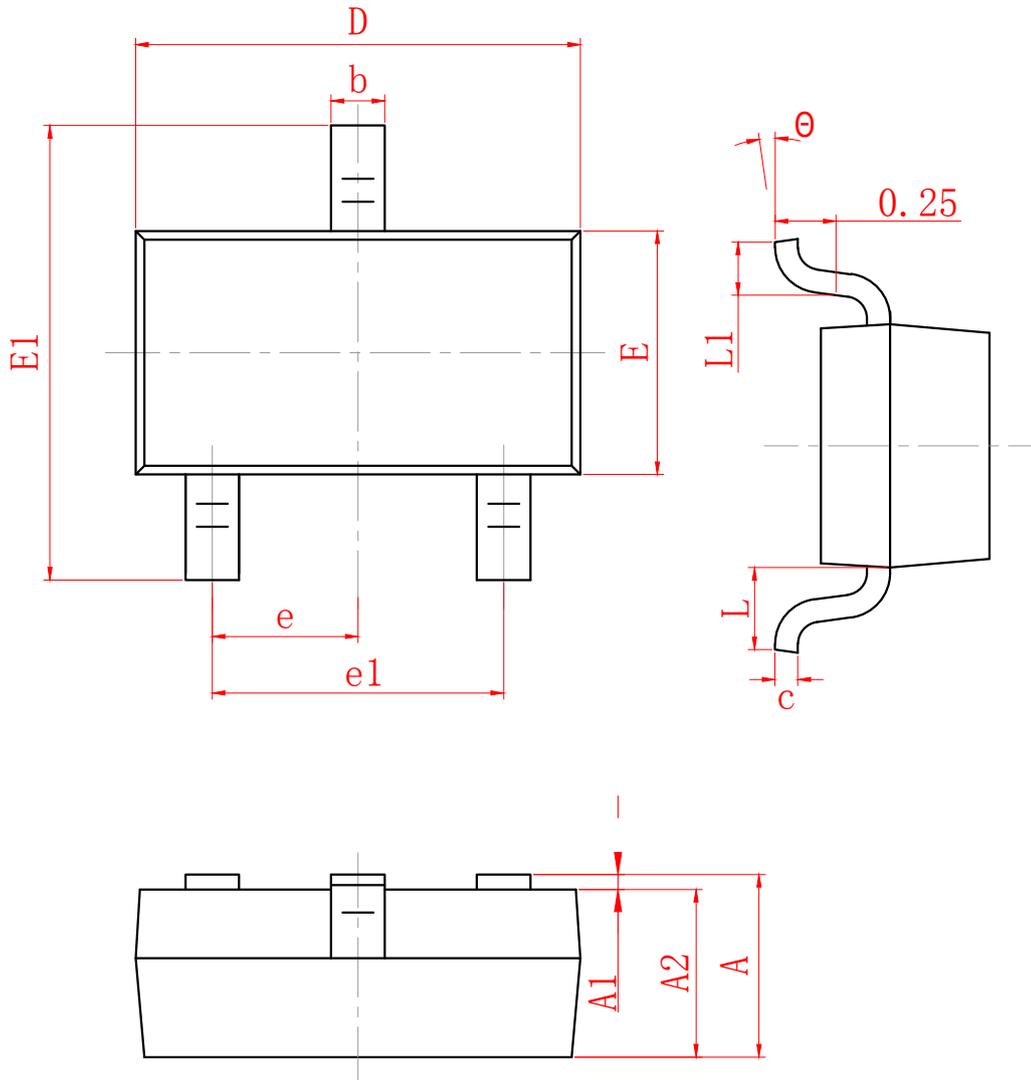


SOT-23 Reel



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°

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