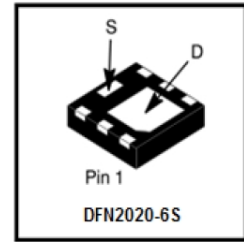


LP2320DT2AG

20V P-Channel Power MOSFET

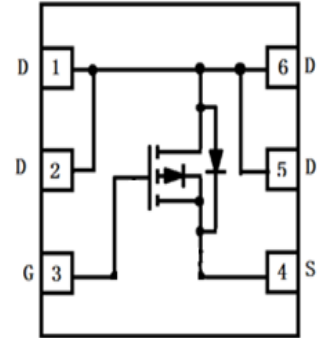
1. FEATURES

- $V_{DS} = -20\text{ V}$.
 $R_{DS(ON)} \leq 17\text{ m}\Omega$, $V_{GS@-4.5\text{V}}$.
 $R_{DS(ON)} \leq 20\text{ m}\Omega$, $V_{GS@-2.5\text{V}}$.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



2. APPLICATIONS

- Load Switches
- DC/DC Conversion
- Motor Drives



3. ORDERING INFORMATION

Device	Marking	Shipping
LP2320DT2AG	PS0	4000/Tape&Reel

4. MAXIMUM RATINGS($T_a = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	V_{DS}	-20	V
Gate-to-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current(Note 1)	ID	$T_A = 25^\circ\text{C}$	-8.5
		$T_A = 70^\circ\text{C}$	-6.7
Pulsed Drain Current (Note 2)	IDM	-34	A
Avalanche Current	IAS	21	A
Avalanche energy($L=0.1\text{mH}$)	EAS	22	mJ
Power Dissipation(Note 1)	PD	$T_A = 25^\circ\text{C}$	2.1
		$T_A = 70^\circ\text{C}$	1.3
Operating Junction and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient(Note 1)	$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	15	

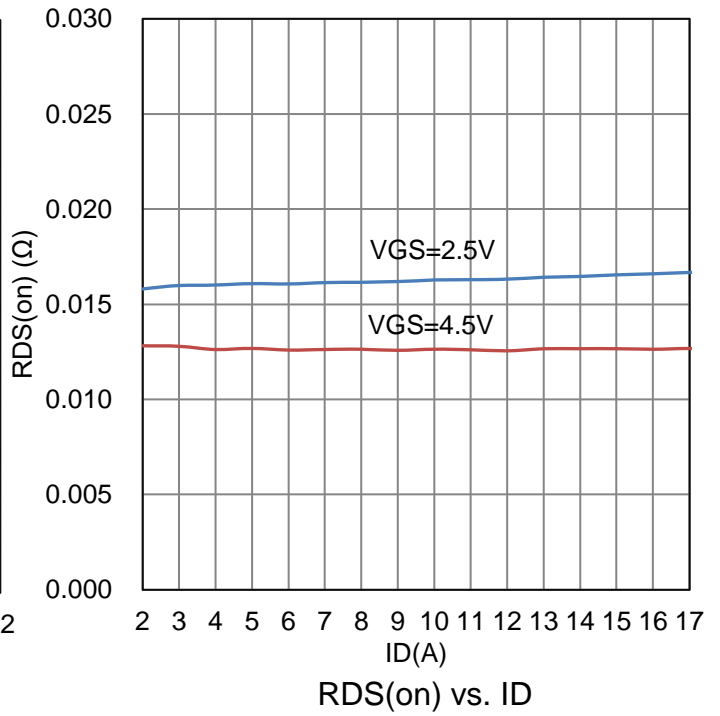
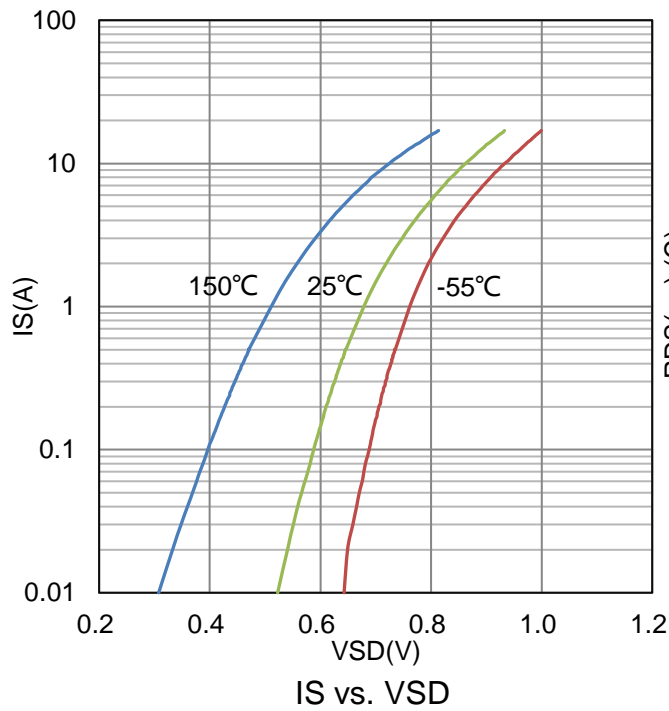
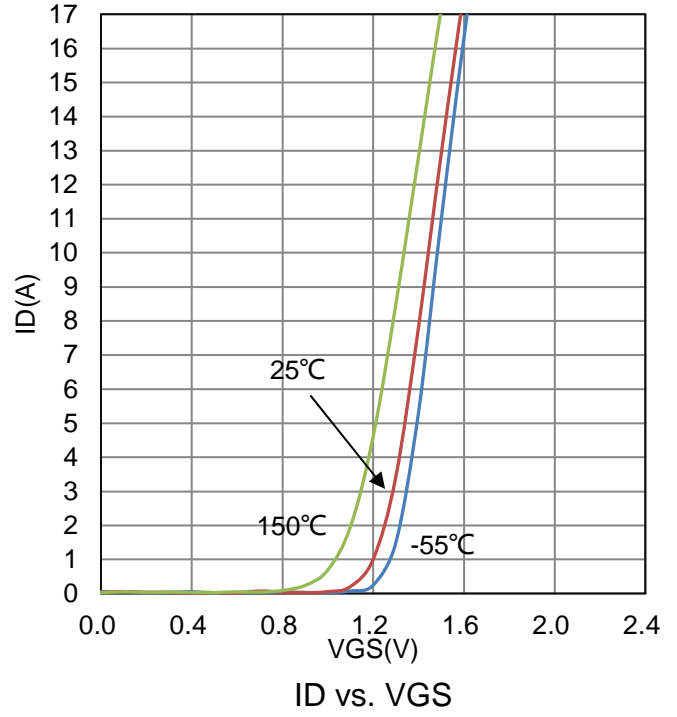
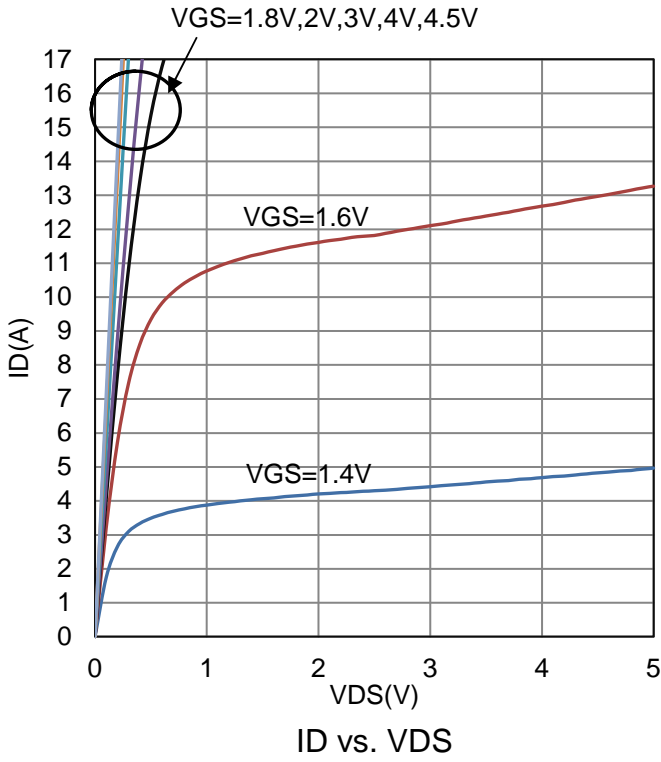
1. Surface mounted on 1.5×1.5 FR4 board using 1 sq in pad, 2 oz Cu.
2. Pulse width limited by maximum junction temperature

6. ELECTRICAL CHARACTERISTICS

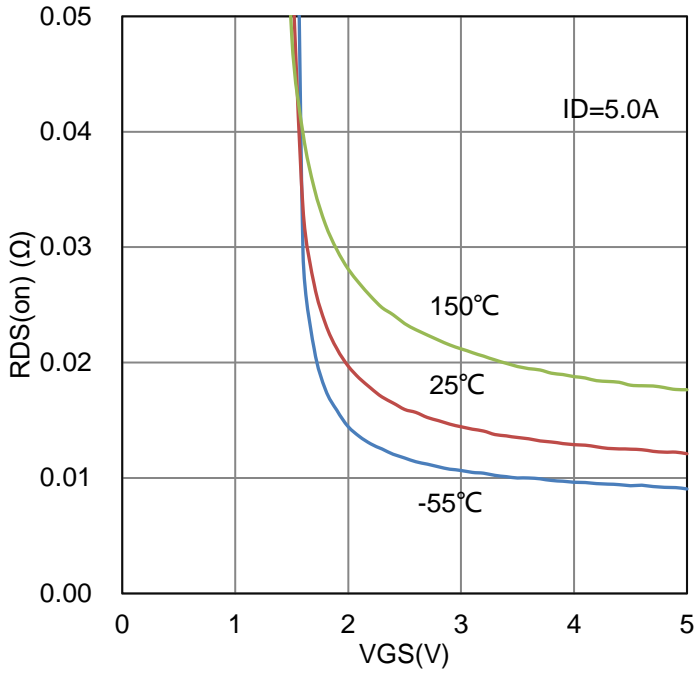
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain–Source Breakdown Voltage (VGS = 0 V , ID = -250 μ A)	V(BR)DSS	-20	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS , ID = -250 μ A)	VGS(th)	-0.4	-0.65	-1	V	
Gate-Body Leakage (VDS = 0 V, VGS = \pm 12 V)	IGSS	-	-	\pm 100	nA	
Zero Gate Voltage Drain Current (VDS = -20 V, VGS = 0 V)	IDSS	-	-	-1	μ A	
Drain-Source On-Resistance(Note 3) (VGS = -4.5 V, ID = -5 A) (VGS = -2.5 V, ID = -4 A)	RDS(on)	-	9 12	17 20	m Ω	
Diode Forward Voltage(Note 3) (IS = -2 A, VGS = 0 V)	VSD	-	-0.8	-1.2	V	
Dynamic						
Total Gate Charge	(VDS = -10 V, VGS = -4.5 V, ID = -5 A)	Qg	-	24	-	nC
Gate-Source Charge		Qgs	-	3.6	-	
Gate-Drain Charge		Qgd	-	6.2	-	
Turn-On Delay Time	(VDD = -10 V, ID = -1 A, VGS = -4.5 V, RGEN = 6 Ω)	td(on)	-	25	-	ns
Rise Time		tr	-	30	-	
Turn-Off Delay Time		td(off)	-	70	-	
Fall Time		tf	-	50	-	
Input Capacitance	(VDS = -10 V, VGS = 0 V, f = 1 MHz)	Ciss	-	1963	-	pF
Output Capacitance		Coss	-	290	-	
Reverse Transfer Capacitance		Crss	-	275	-	

3.Pulse test: PW \leq 300us duty cycle \leq 2%.

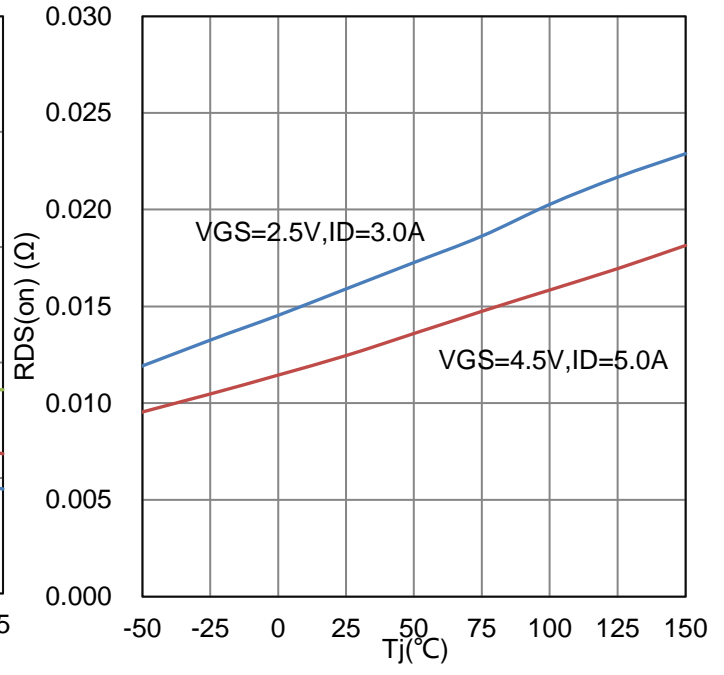
7. ELECTRICAL CHARACTERISTICS CURVES



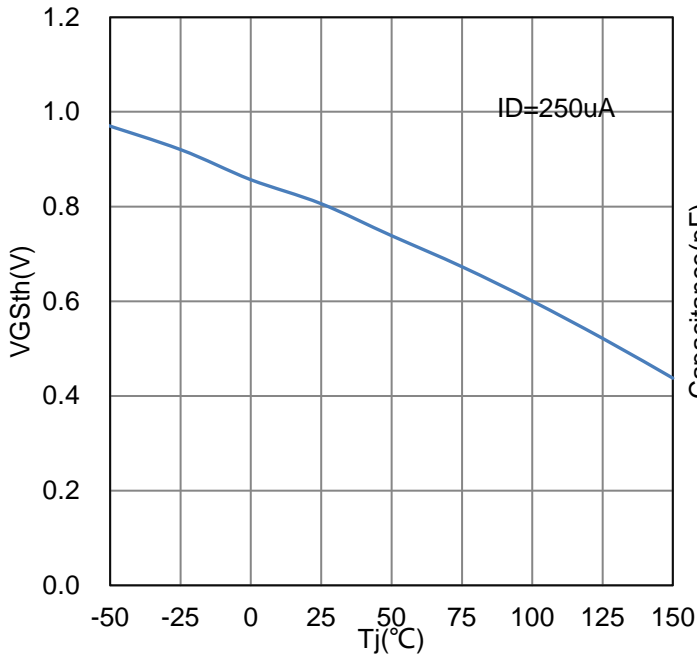
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



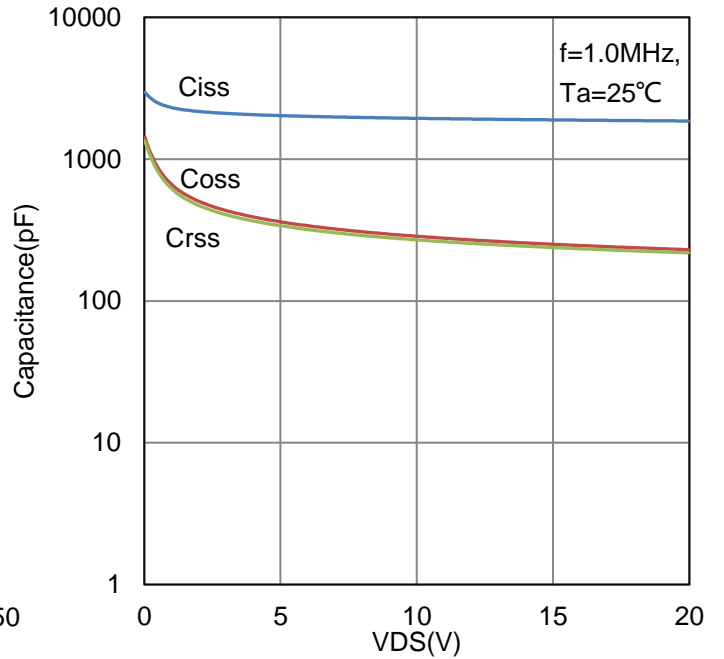
$R_{DS(on)}$ vs. V_{GS}



$R_{DS(on)}$ vs. T_j

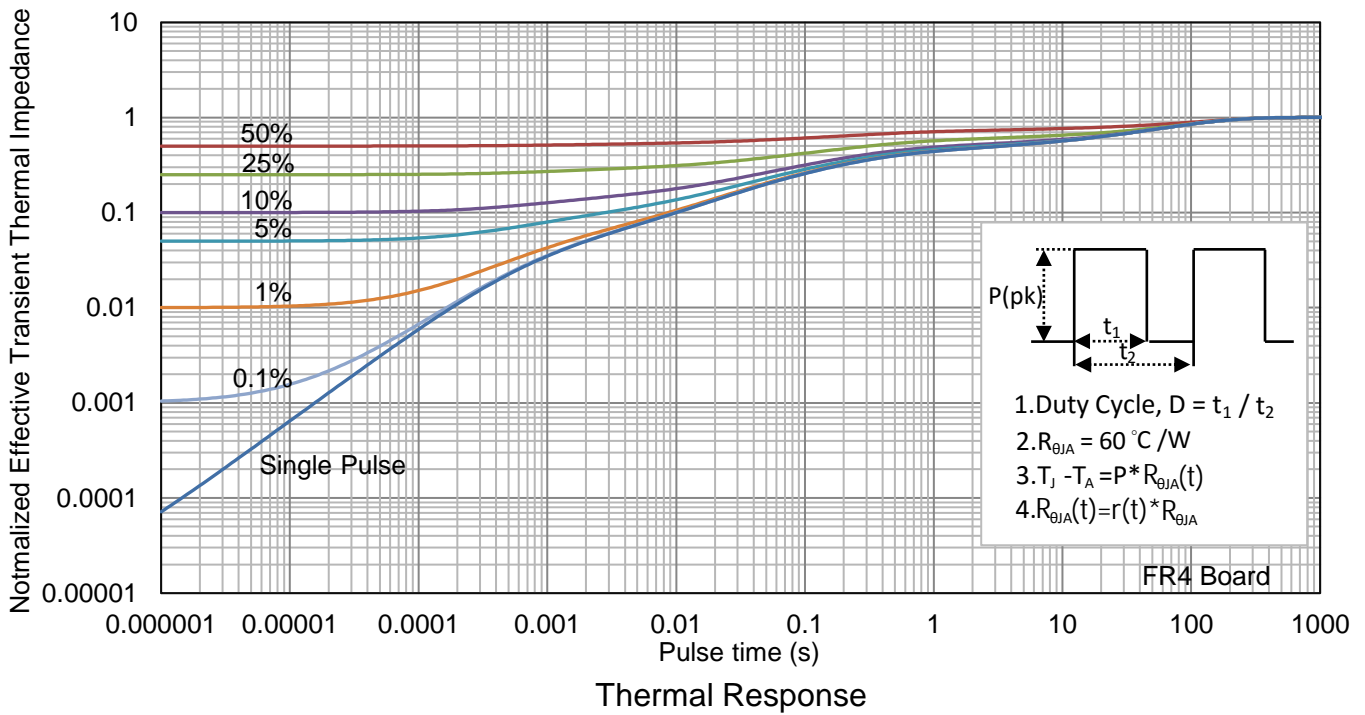
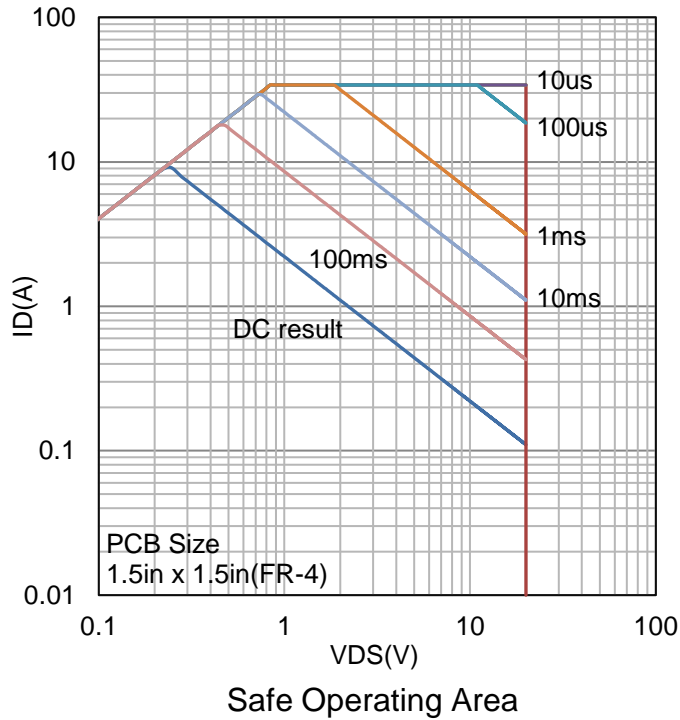


$V_{GS(th)}$ vs. T_j

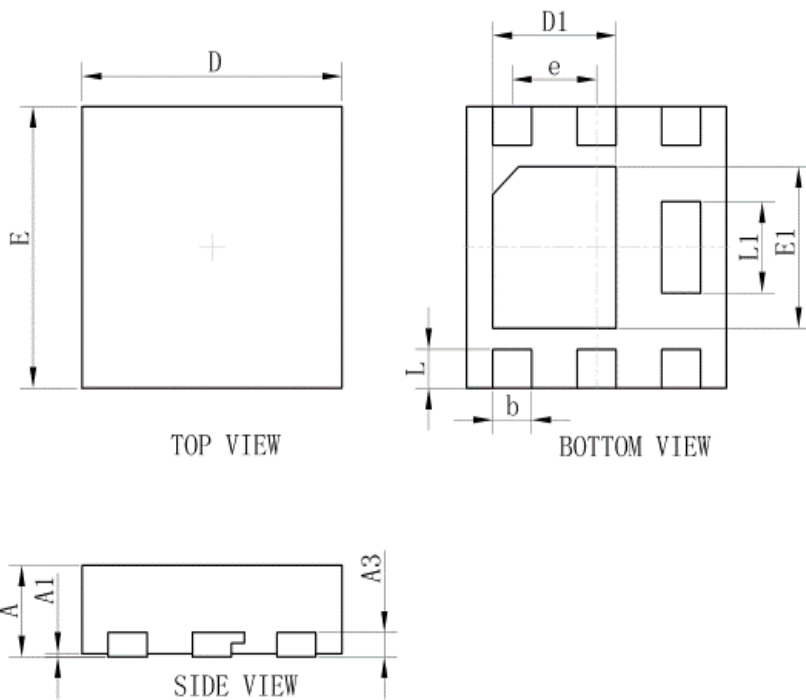


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

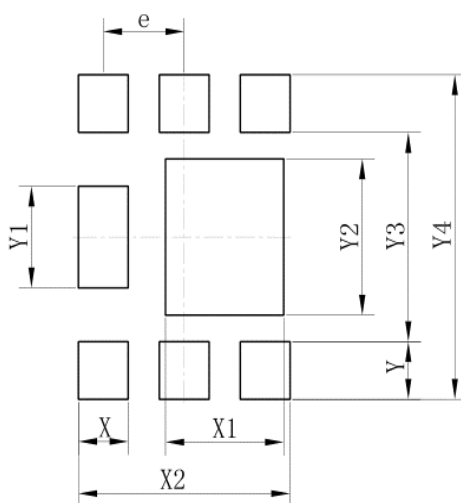


8. OUTLINE AND DIMENSIONS



DFN2020-6S			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.01	0.03	0.05
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	0.65TYP.		
L	0.23	0.28	0.33
L1	0.60	0.65	0.70
D1	0.90	0.95	1.00
E1	1.10	1.15	1.20
A3	0.152REF		
All Dimensions in mm			

9. SOLDERING FOOTPRINT



DFN2020-6S	
Dim	(mm)
X	0.40
X1	0.95
X2	1.70
e	0.65
Y	0.43
Y1	0.75
Y2	1.15
Y3	1.54
Y4	2.39

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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