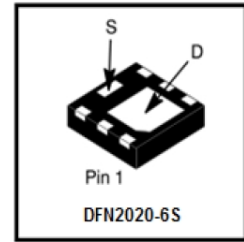


# LP3416DT2AG

## 30V P-Channel Power MOSFET

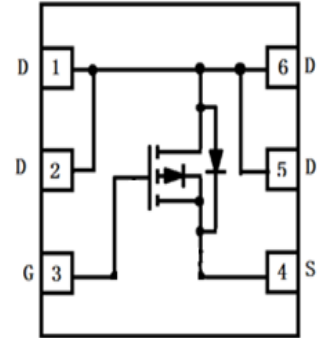
### 1. FEATURES

- $V_{DS} = -30\text{ V}$ .  
 $R_{DS(ON)} \leq 25\text{ m}\Omega$ ,  $V_{GS@-10\text{V}}$ .  
 $R_{DS(ON)} \leq 37\text{ m}\Omega$ ,  $V_{GS@-4.5\text{V}}$ .
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



### 2. APPLICATIONS

- DC/DC Conversion
- Power Routing
- Load Switch



### 3. ORDERING INFORMATION

Device	Marking	Shipping
LP3416DT2AG	P6S	4000/Tape&Reel

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

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	$V_{DS}$	-30	V
Gate-to-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current(Note 1)	ID	$T_A = 25^\circ\text{C}$	-8
		$T_A = 70^\circ\text{C}$	-7
Pulsed Drain Current (Note 2)	IDM	-32	A
Avalanche Current	IAS	20	A
Avalanche energy(L=0.1mH)	EAS	20	mJ
Power Dissipation(Note 1)	PD	$T_A = 25^\circ\text{C}$	2
		$T_A = 70^\circ\text{C}$	1.3
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 ~ +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	$R_{\theta JC}$	10	

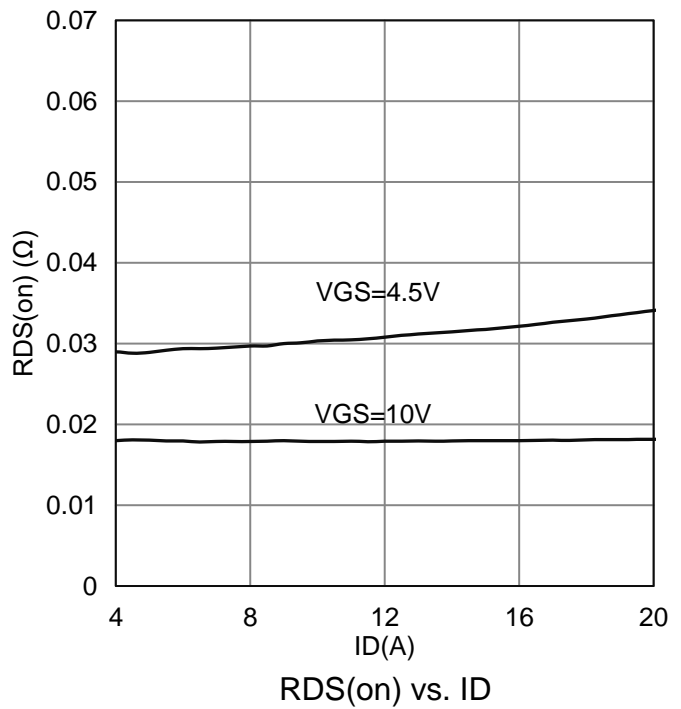
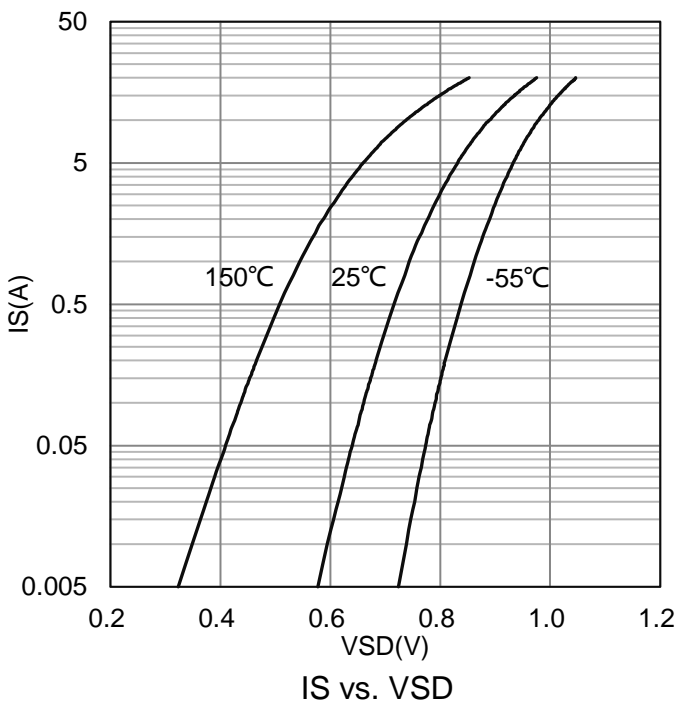
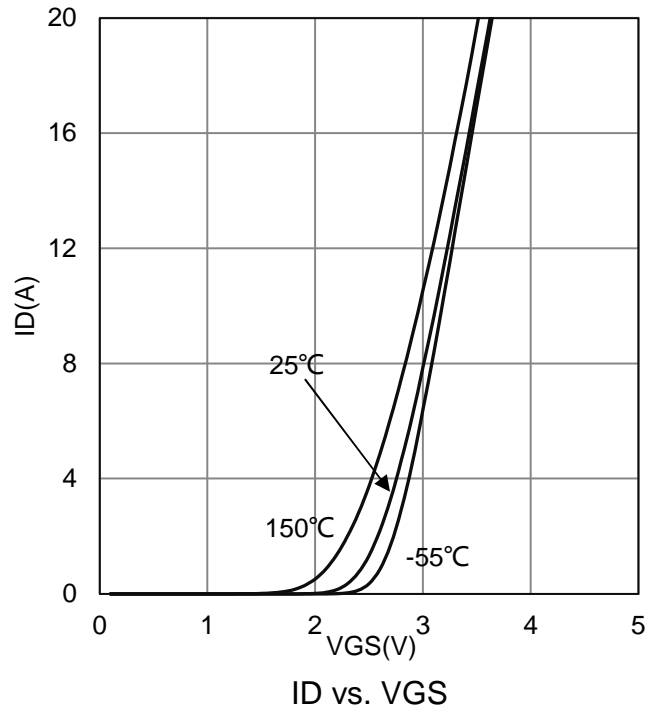
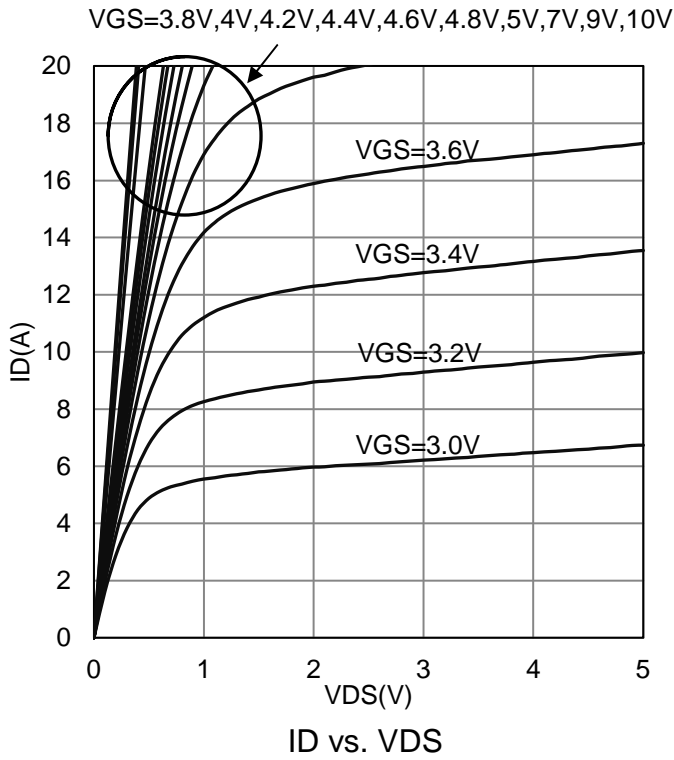
- 1.Surface mounted on 1.5 x 1.5 FR4 board using 1 sq in pad, 2 oz Cu.
- 2.Pulse width limited by maximum junction temperature

## 6. ELECTRICAL CHARACTERISTICS

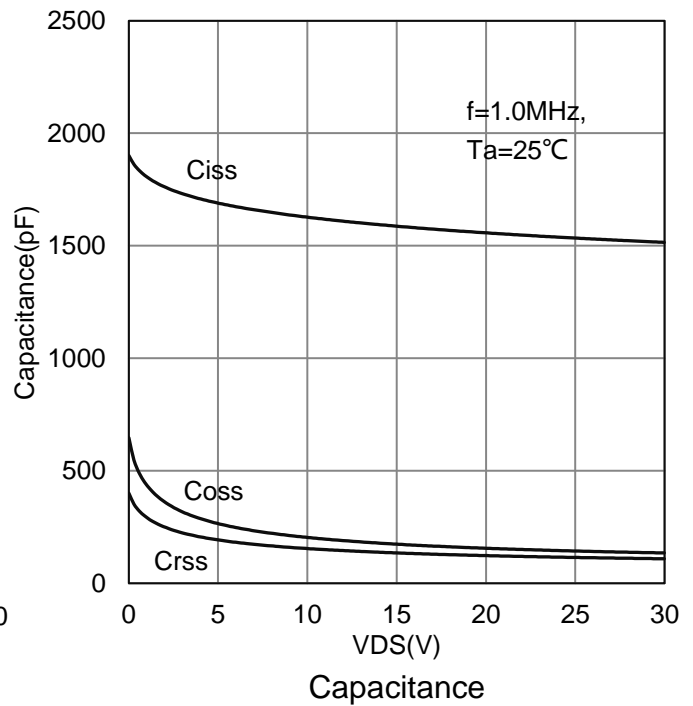
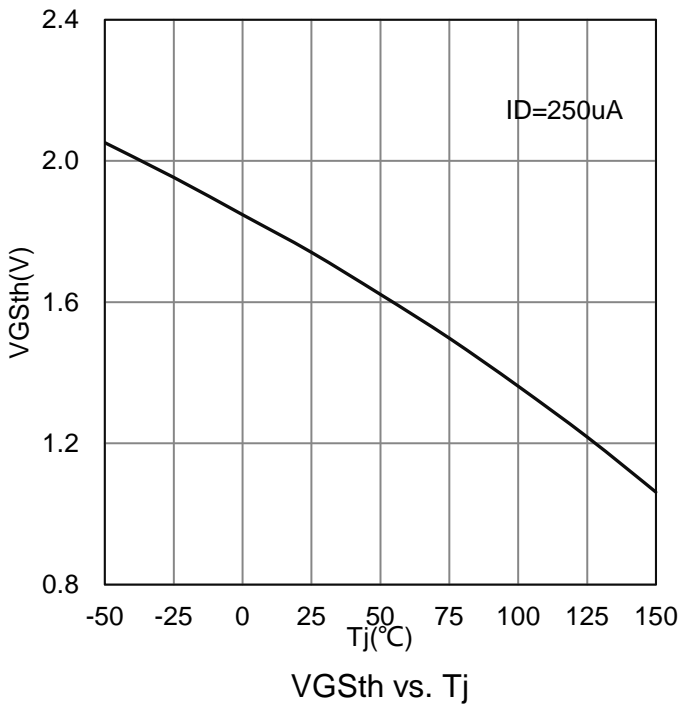
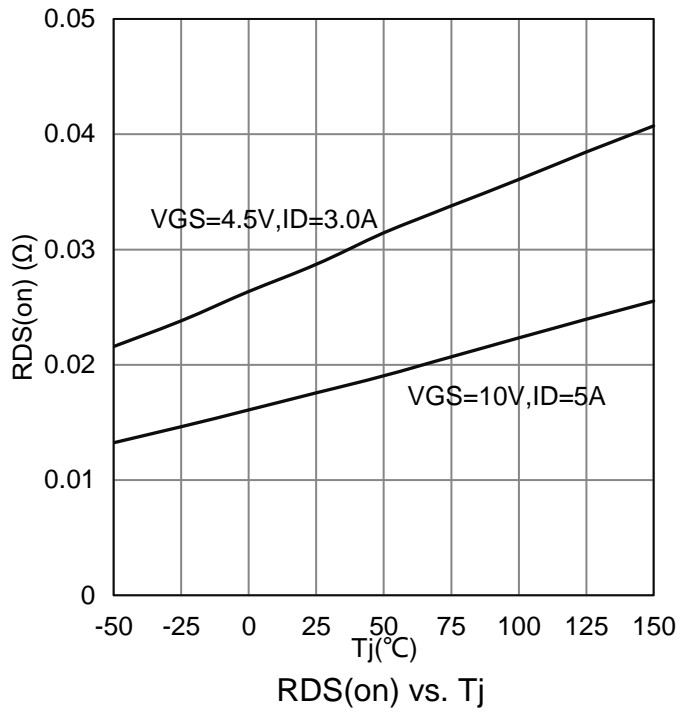
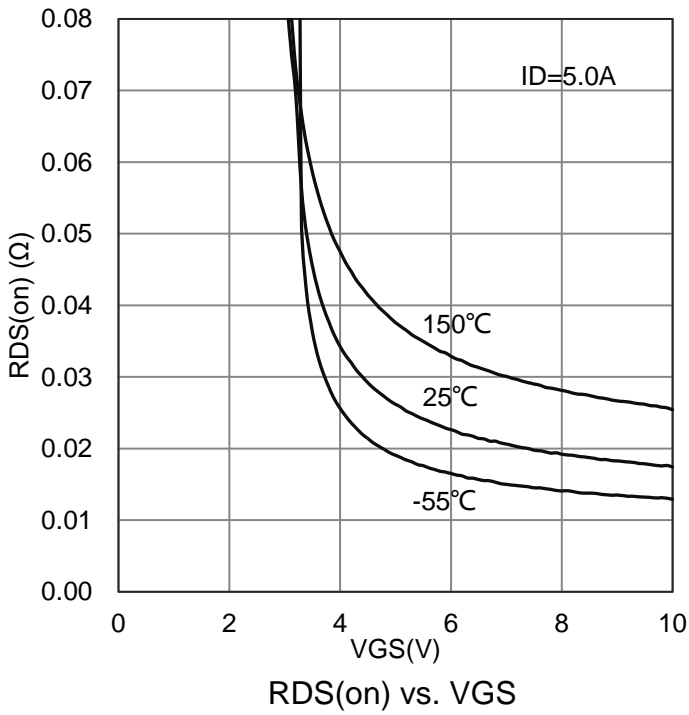
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
<b>Static</b>						
Drain–Source Breakdown Voltage (VGS = 0 V , ID = -250 uA)	V(BR)DSS	-30	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS , ID = -250 uA)	VGS(th)	-1	-	-2.5	V	
Gate-Body Leakage (VDS = 0 V, VGS = ± 20 V)	IGSS	-	-	± 100	nA	
Zero Gate Voltage Drain Current (VDS = -24 V, VGS = 0 V)	IDSS	-	-	-1	μA	
Drain-Source On-Resistance(Note 3) (VGS = -10V, ID = -5A) (VGS = -4.5V, ID = -3A)	RDS(on)	-	-	25 37	mΩ	
Diode Forward Voltage(Note 3) (IS = -1A, VGS = 0V)	VSD	-	-	-1.5	V	
<b>Dynamic</b>						
Total Gate Charge	(VDS = -15 V, VGS = -10 V, ID = -5 A)	Qg	-	25	-	nC
Gate-Source Charge		Qgs	-	3.8	-	
Gate-Drain Charge		Qgd	-	5	-	
Turn-On Delay Time	(VDS = -15 V, RL = 2 Ω, ID = -7.5 A, VGEN = -10 V, RGEN = 6 Ω)	td(on)	-	7.7	-	ns
Rise Time		tr	-	9.6	-	
Turn-Off Delay Time		td(off)	-	69	-	
Fall Time		tf	-	28	-	
Input Capacitance	(VDS = -15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	1585	-	pF
Output Capacitance		Coss	-	173	-	
Reverse Transfer Capacitance		Crss	-	134	-	

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

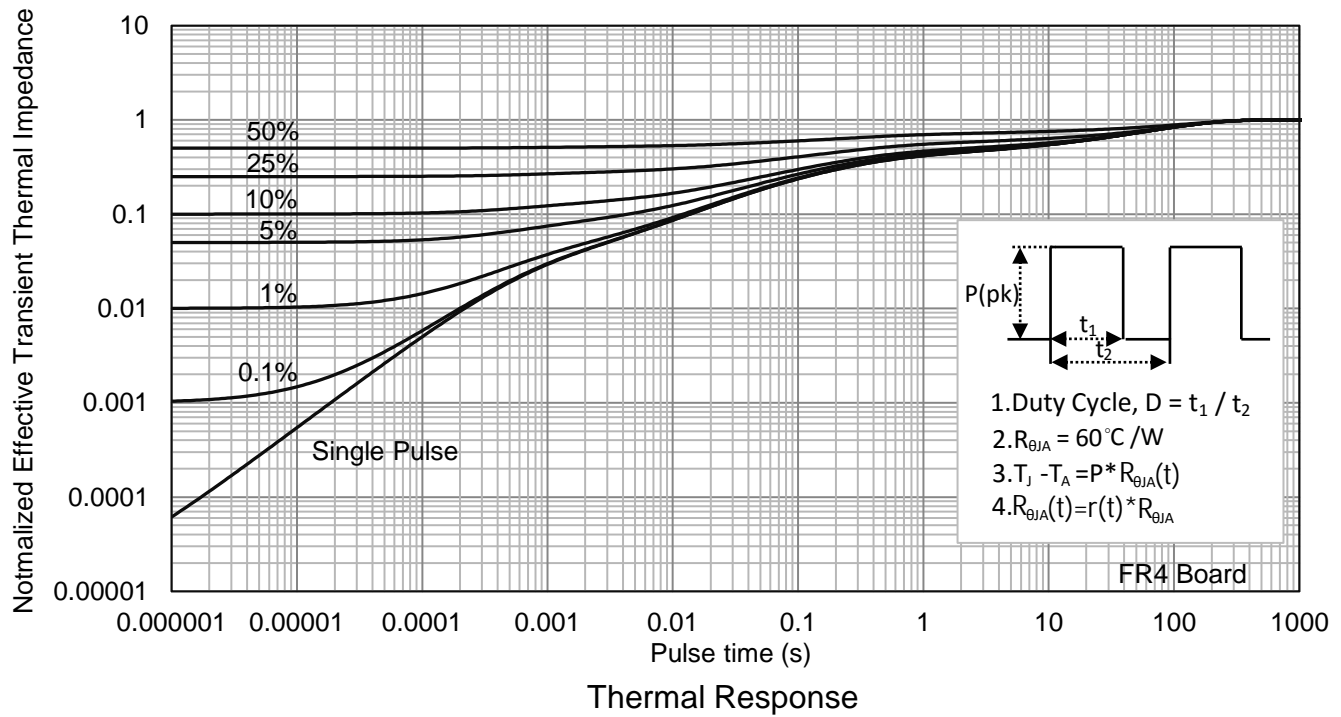
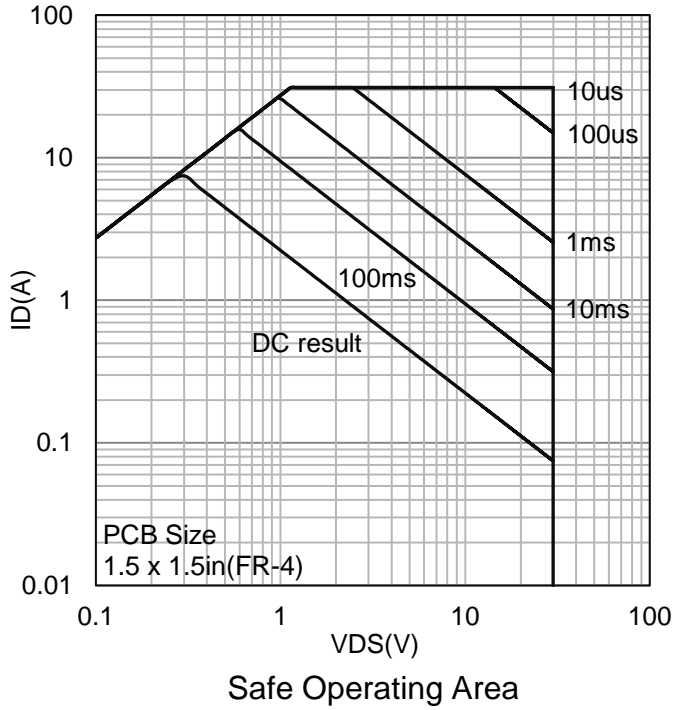
**7. ELECTRICAL CHARACTERISTICS CURVES**



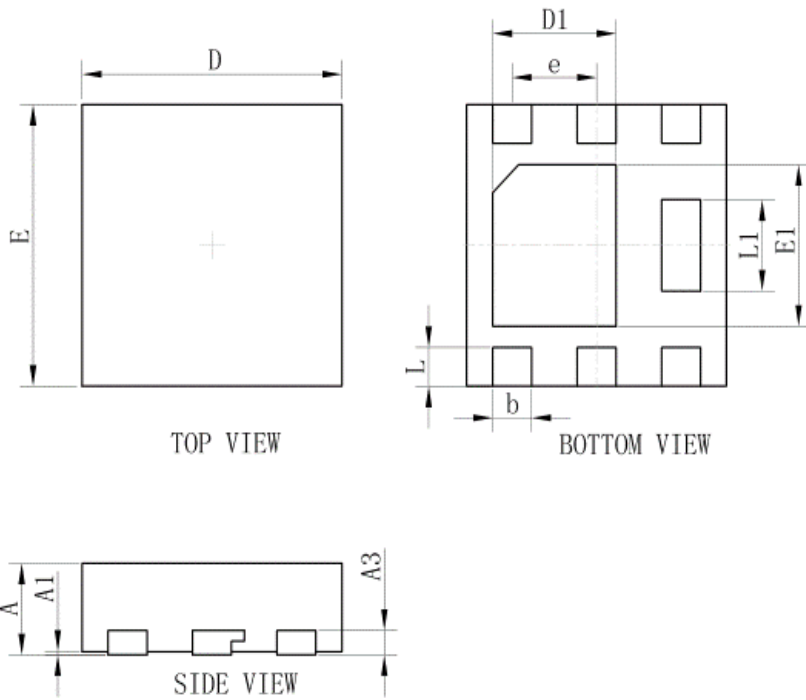
**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**



7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

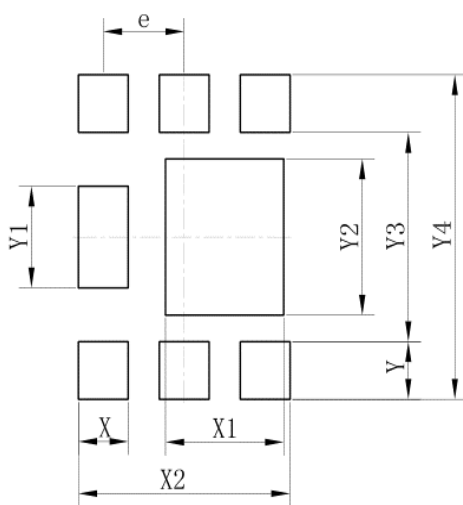


**8. OUTLINE AND DIMENSIONS**



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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