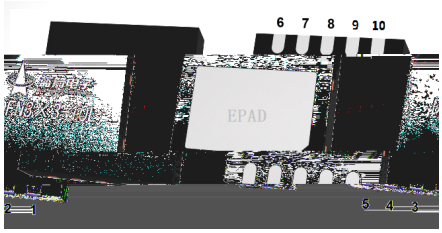
BRCL3120CZV

Rev.A Feb.-2026

/ Pinning



Pin Number	Pin Name	Pin Description
1	VDD	
2,3,4,5	GND	
6,7,8,9,10	VM	
EPAD	GND	

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

/Parameter	/Symbol	/Value	/Unit
V_{DD} input pin voltage	V_{IN}	-0.3 to +8	V
V_{VM} input pin voltage	V_{VM}	-8 to +10	V
Maximum Junction Temperature	T_J	-40 to +145	
Storage Temperature	T_{stg}	-55 to +145	
ESD HBM Mode	ESD	4000	V

/ Electrical Characteristics(Unless otherwise specified,Ta=25)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Power supply						
Supply Voltage	V_{DD}		0		6	V
Charger input voltage	V_M		-6		6	V
Detection voltage						
Overcharge Detection Voltage	V_{OCV}		4.25	4.3	4.35	V
Overcharge Release Voltage	V_{OCR}		4.04	4.10	4.16	V
Overdischarge Detection Voltage	V_{ODV}		2.30	2.40	2.50	V
Overdischarge Release Voltage	V_{ODR}		2.90	3.00	3.10	V
Detection current						
Overdischarge Current Detection	I_{OCI}		18	23	28	A
Load Short-Circuiting Detection	I_{SHORT}		30	50	70	A
Overcharge Current Detection	I_{CHA}		14	20	26	A
Static current						
Current Consumption in Normal Operation	I_{OPE}	V_M=0V		3.5	7	μA
Current Consumption in Dormancy	I_{PDN}	V_{DD}=1.8V		2	6	μA
Pull-up and Pull-down Current from VM						
Internal pull-up current	I_{PU}			14		μA
Internal pull-down current	I_{PD}	V_M=1V		14		μA
Equivalent FET on Resistance						
Equivalent FET on Resistance	R_{DS}	I_{VM}=1A	6	9.5	11	mΩ

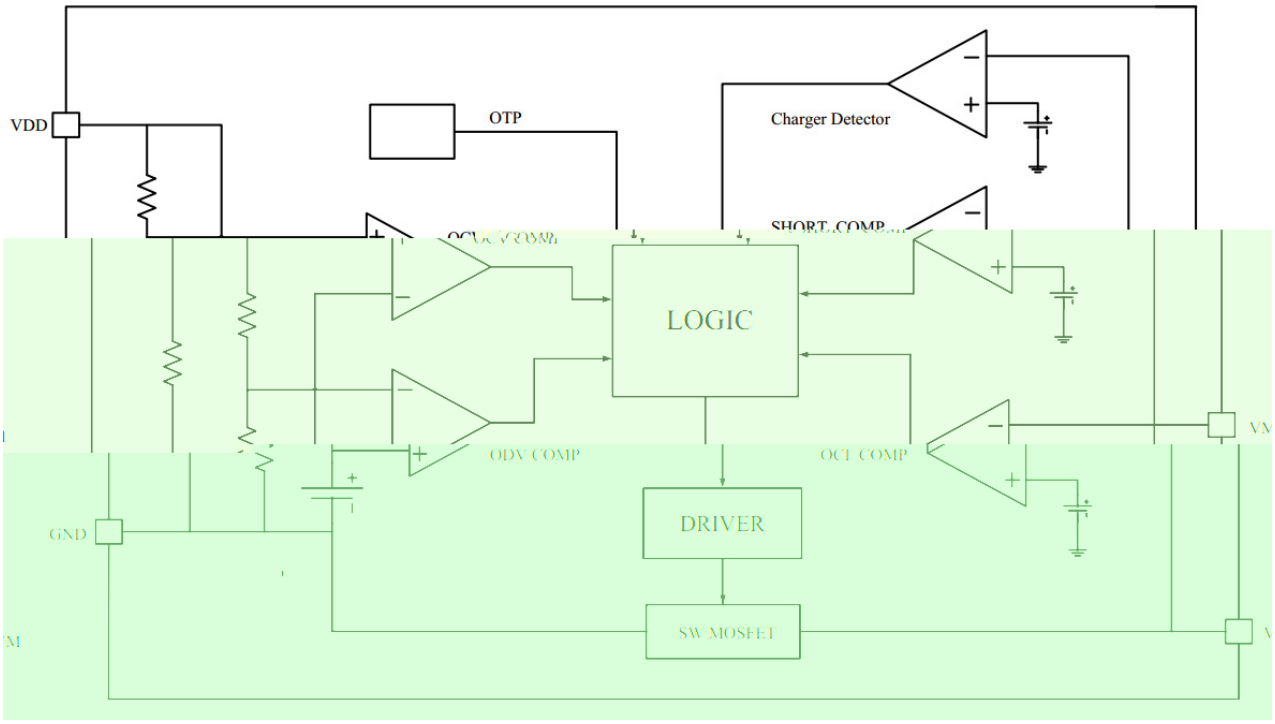
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Over temperature protection						
Over-temperature protection	OTP			145		
Over-temperature protection release temperature	OTPR			120		
Detection delay						
Overcharge Voltage Detection Delay Time	T_{OCV}			100		ms
Overdischarge Voltage Detection Delay Time	T_{ODV}			100		ms
Overdischarge Current1 Detection Delay Time	T_{IOV1}			8		ms
Overdischarge Current2 Detection Delay Time	T_{IOV2}			2		ms
Load Short-Circuiting Detection Delay Time	T_{SHORT}			150		μs

* (OTP) OTPR

*

/ Functionl Block Diagram



/ Functional Description

BRCL3120CZV

MOSFET 10mΩ

BRCL3120CZV

/ Normal Operating mode

/ Overcharge Voltage Condition

(V_{OCV})

(T_{OCV}) BRCL3120CZV MOSFET

(T_{OCV})

1 VM (V_{CHA}) (V_{OCR})

2 (Vocv)

/ Overcharge Current Condition

I_{CHA} (T_{OCI}) MOSFET

BRCL3120CZV

/ Overdischarge Voltage Condition

(V_{ODV})

(T_{ODV}) BRCL3120CZV

MOSFET VDD 2.3V ( )

(I_{PDN}). VDD 2.4V ( )

(V_{ODR}) BRCL3120CZV

/ Overdischarge Current Condition

VM

VM

/ Load Short-circuiting Condition

VM (V_{SHORT})

T_{SHORT} VM

/ Charger Detection

VM (V_{CHA})

(V_{ODV}) BRCL3120CZV

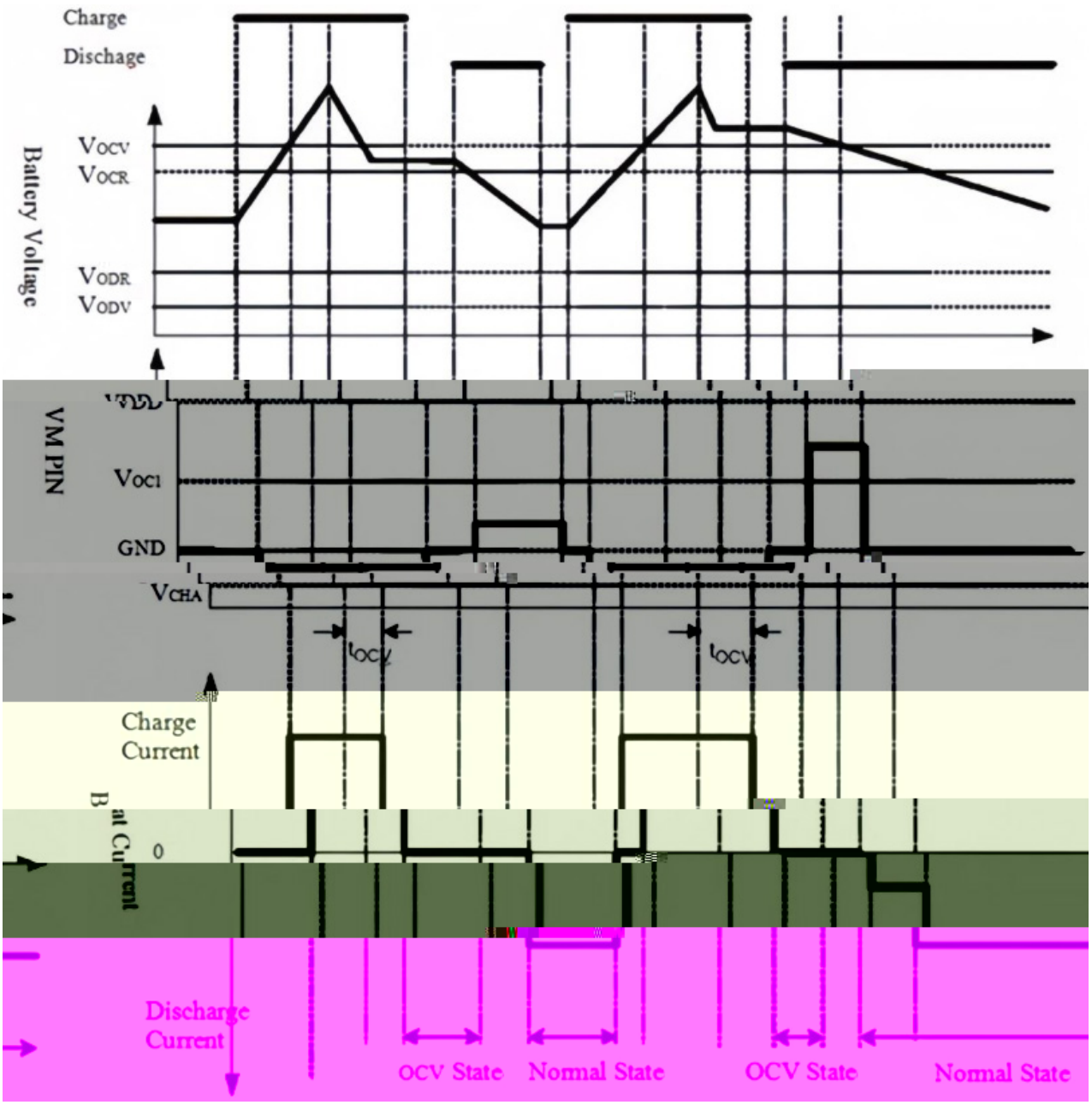
0V / 0V Battery Charging Function

0V 2.3V MOS

2.3V 200mA

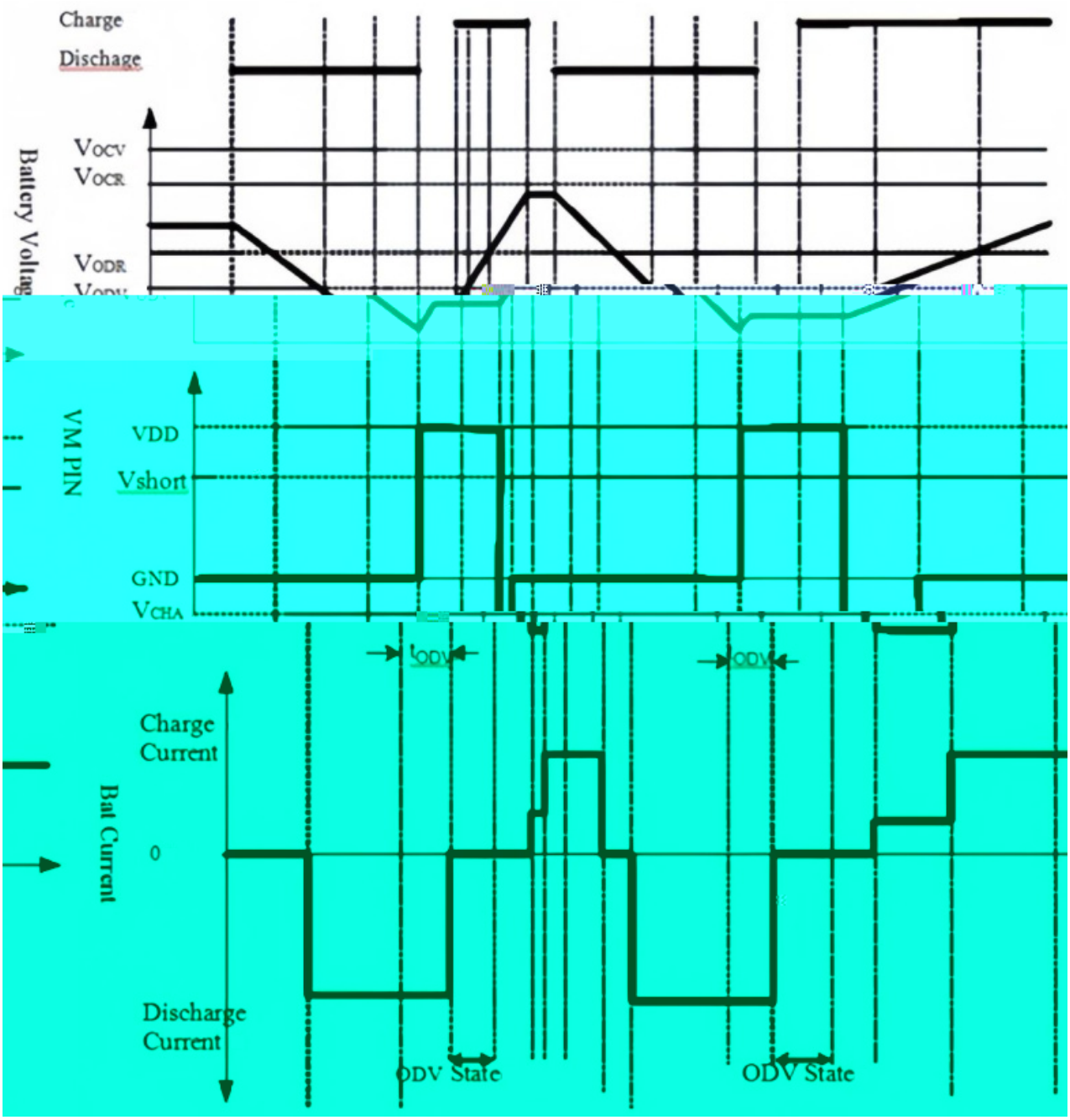
/ Timing Chart

→ → **/ Overcharge → Discharge → Normal Operation.**



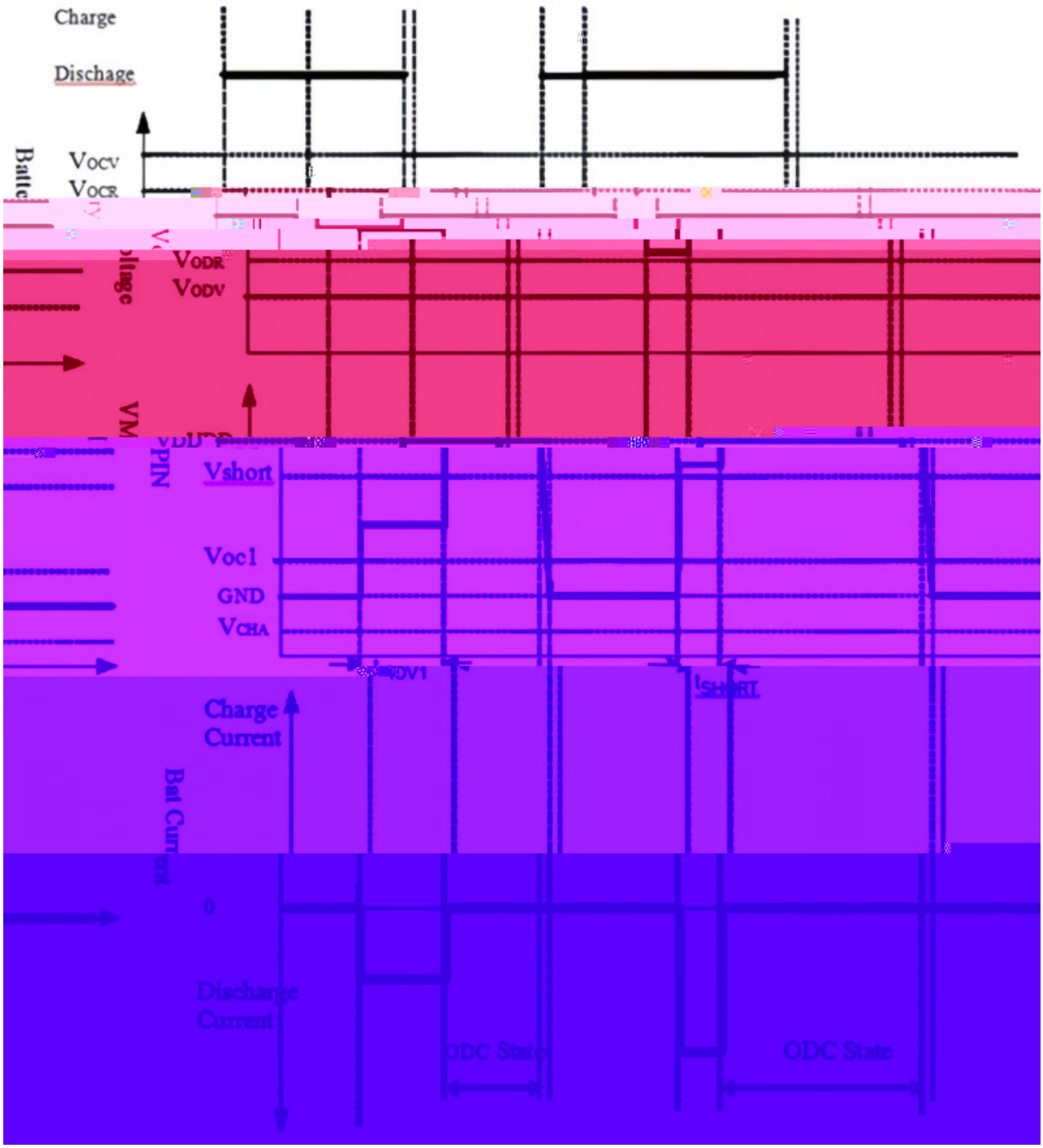
/ Timing Chart

→ → **/ Overdischarge → Charging → Normal Operation.**



/ Timing Chart

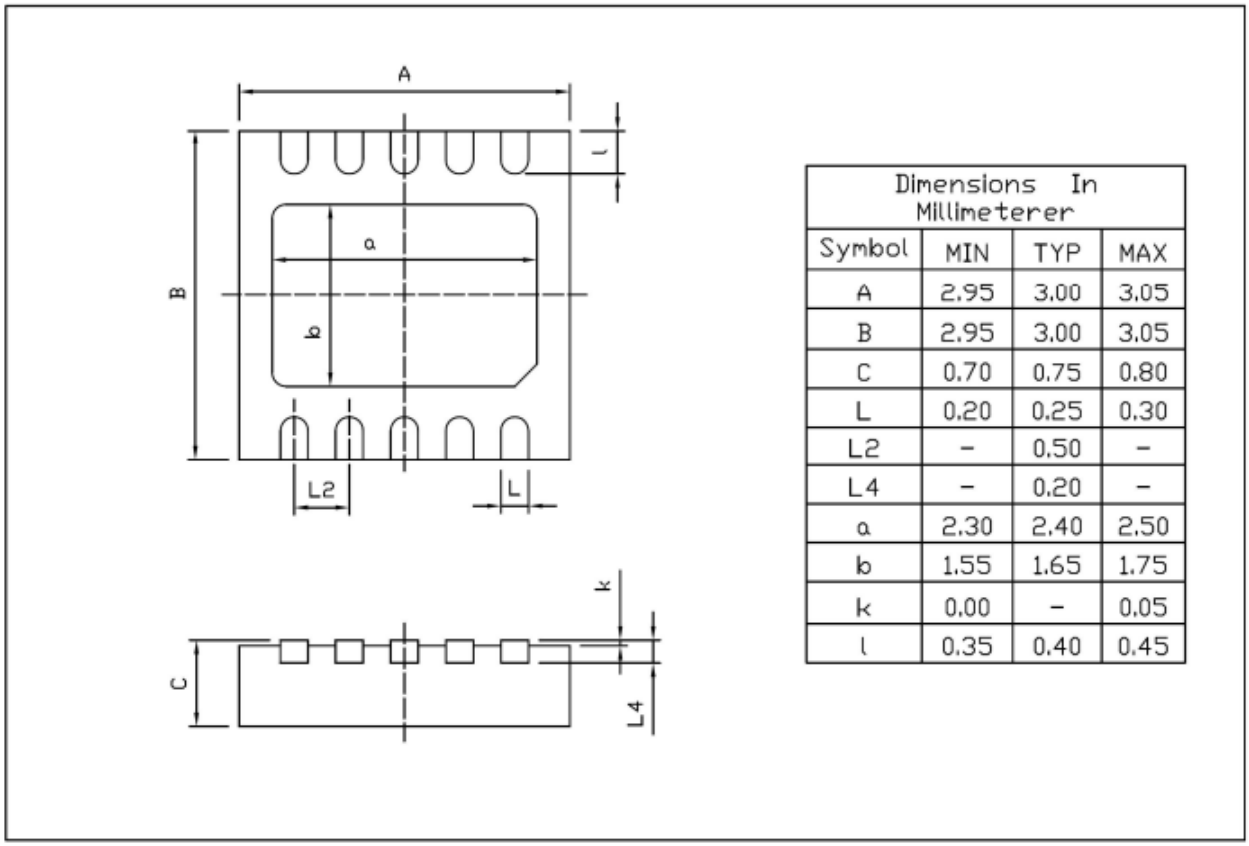
→ **/ Discharge Overcurrent → Normal Operation.**



/ Package Dimensions

DFN3X3-10L

Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	2.95	3.00	3.05
B	2.95	3.00	3.05
C	0.70	0.75	0.80
L	0.20	0.25	0.30
L2	-	0.50	-
L4	-	0.20	-
a	2.30	2.40	2.50
b	1.55	1.65	1.75
k	0.00	-	0.05
l	0.35	0.40	0.45

Rev.00 202008

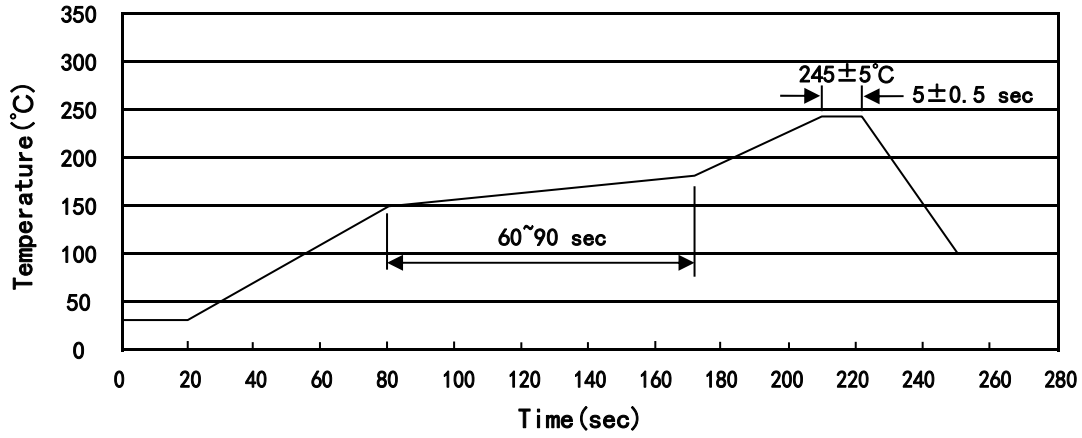
/ Marking Instructions

BR

3120C

****

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

1	150	180	60	90sec;	1.Preheating:150~180 , Time:60~90sec.
2	245±5			5±0.5sec;	2.Peak Temp.:245±5 , Duration:5±0.5sec.
3		2	10	/sec.	3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5	10±1 sec.	Temp.:260±5	Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
DFN3×3-10L	5,000	2	10,000	6	60,000	13 ×12	360×360×50	380×335×366

/ Notices

All information provided in this document is subject to legal disclaimers.