

/ Descriptions

BRCL3130DZZ MOSFET
MOSFET

BRCL3130DZZ DFN2×2-8L

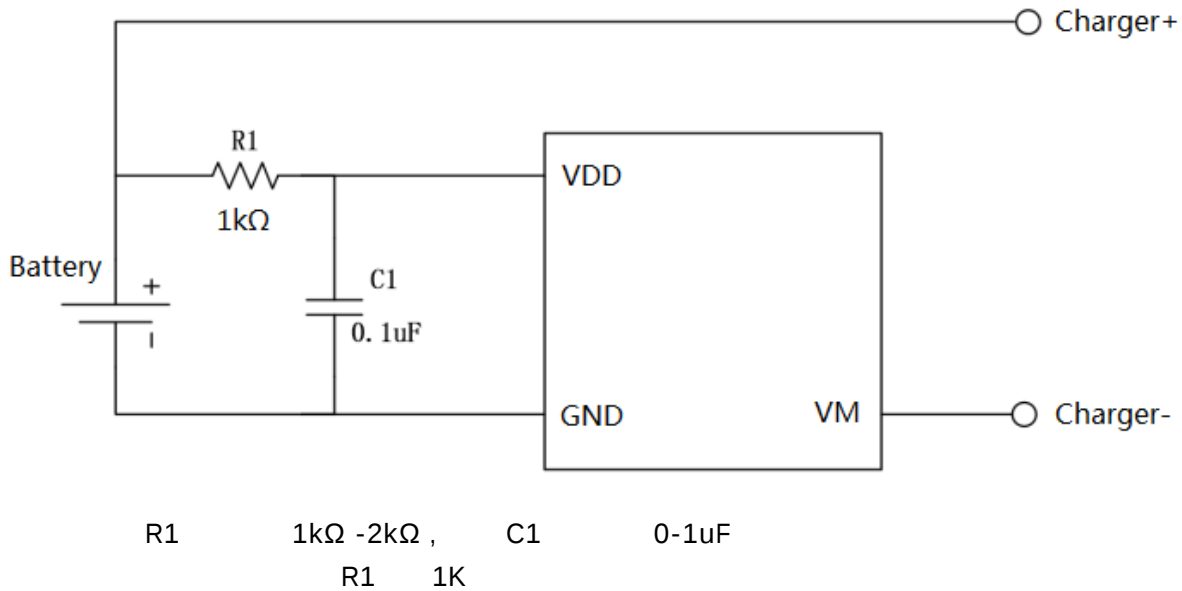
/ Features

- ◆ 16mΩ MOSFET
- ◆ DFN2×2-8L
- ◆
- ◆
- ◆ 3.5 μA
- ◆ 0.6 μA
- ◆

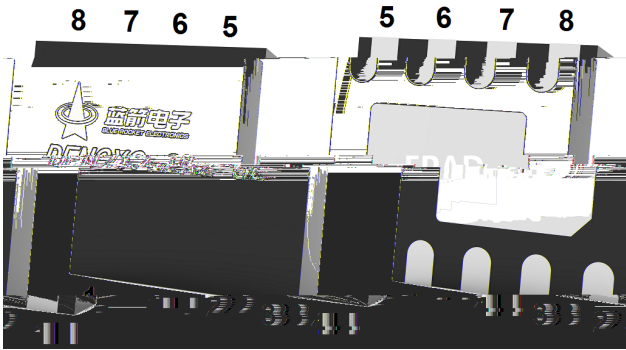
/ Applications

Single lithium ion rechargeable battery pack, single lithium polymer rechargeable battery pack.

/ Typical Application



/ Pinning



Pin Number	Pin Name	Pin Description
1	VDD	
2,3,4	GND	
5,6,7,8	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}		9	11.5	14	A
Load Short-Circuiting Detection	I _{SHORT}		15	25	35	A
Overcharge Current Detection	I _{CHA}		7	10	13	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		0.6	1.5	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	12.5	16	18	mΩ

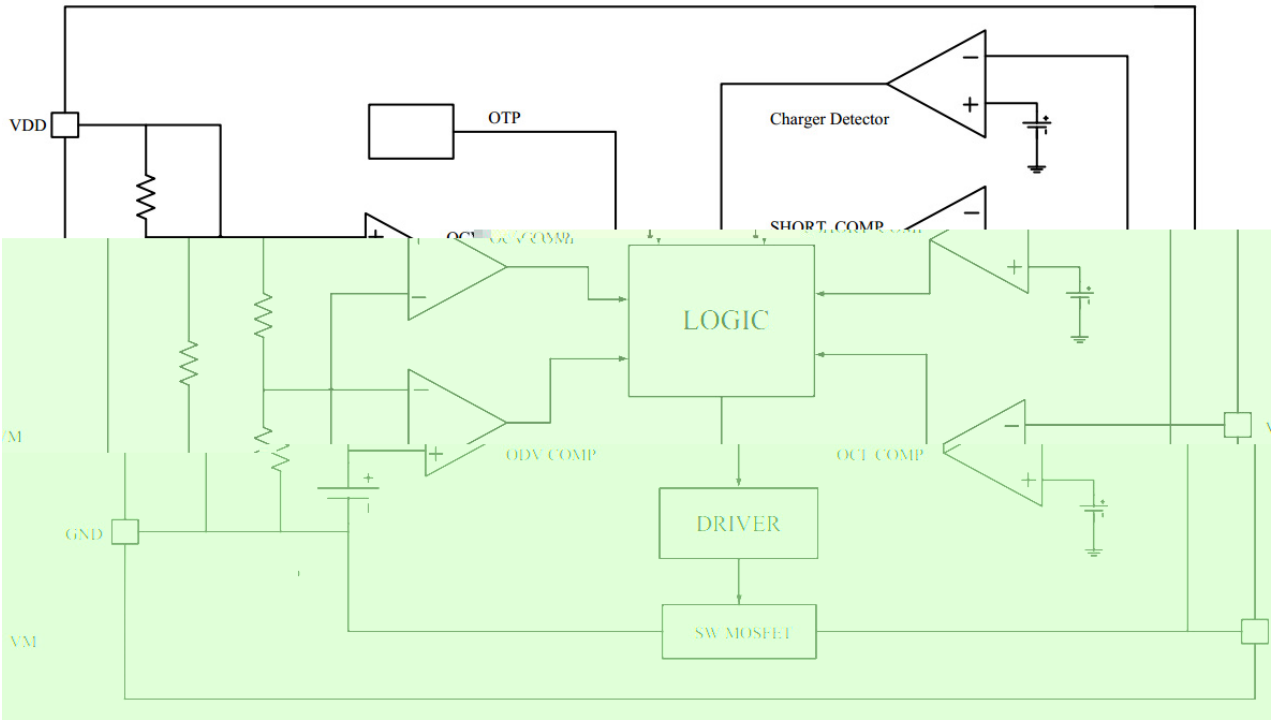
/ Electrical Characteristics(Ta=25)

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

*

/ FunctionI Block Diagram



/ Functional Description

BRCL3130DZZ

MOSFET

16mΩ

BRCL3130DZZ

/ Normal Operating mode

/ Overcharge Voltage Condition

			(V _{OCV})	
(T _{OCV})	BRCL3130DZZ	MOSFET		
	(T _{OCV})			
1	VM	(V _{CHA})		(V _{OCR})
2		(V _{OCV})		

/ Overcharge Current Condition

I _{CHA}	(T _{OCI})	MOSFET
BRCL3130DZZ		

/ Overdischarge Voltage Condition

			(V _{ODV})	
(T _{ODV})	BRCL3130DZZ			
	MOSFET	VDD	2.3V ()	
	(I _{PDN}).	VDD	2.4V ()	
		(V _{ODR})	BRCL3130DZZ	

/ Overdischarge Current Condition

		VM
VM		

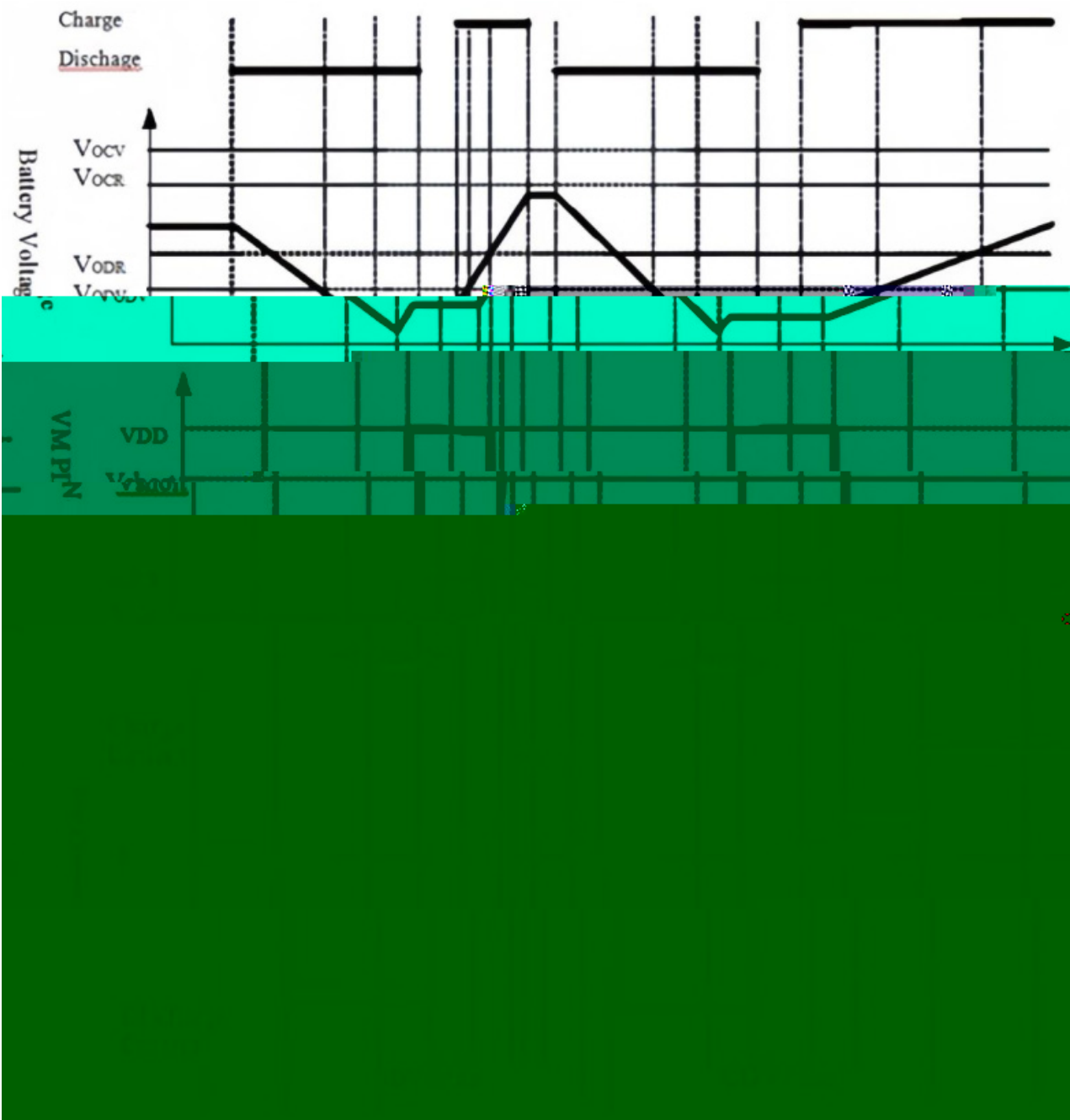
/ Load Short-circuiting Condition

VM	(V _{SHORT})
T _{SHORT}	VM

/ Charger Detection				
		VM		(V _{CHA})
	(V _{ODV})	BRCL3130DZZ		
/ 0V Battery Charging Function				
0V	0V	2.30	G	H

/ Timing Chart

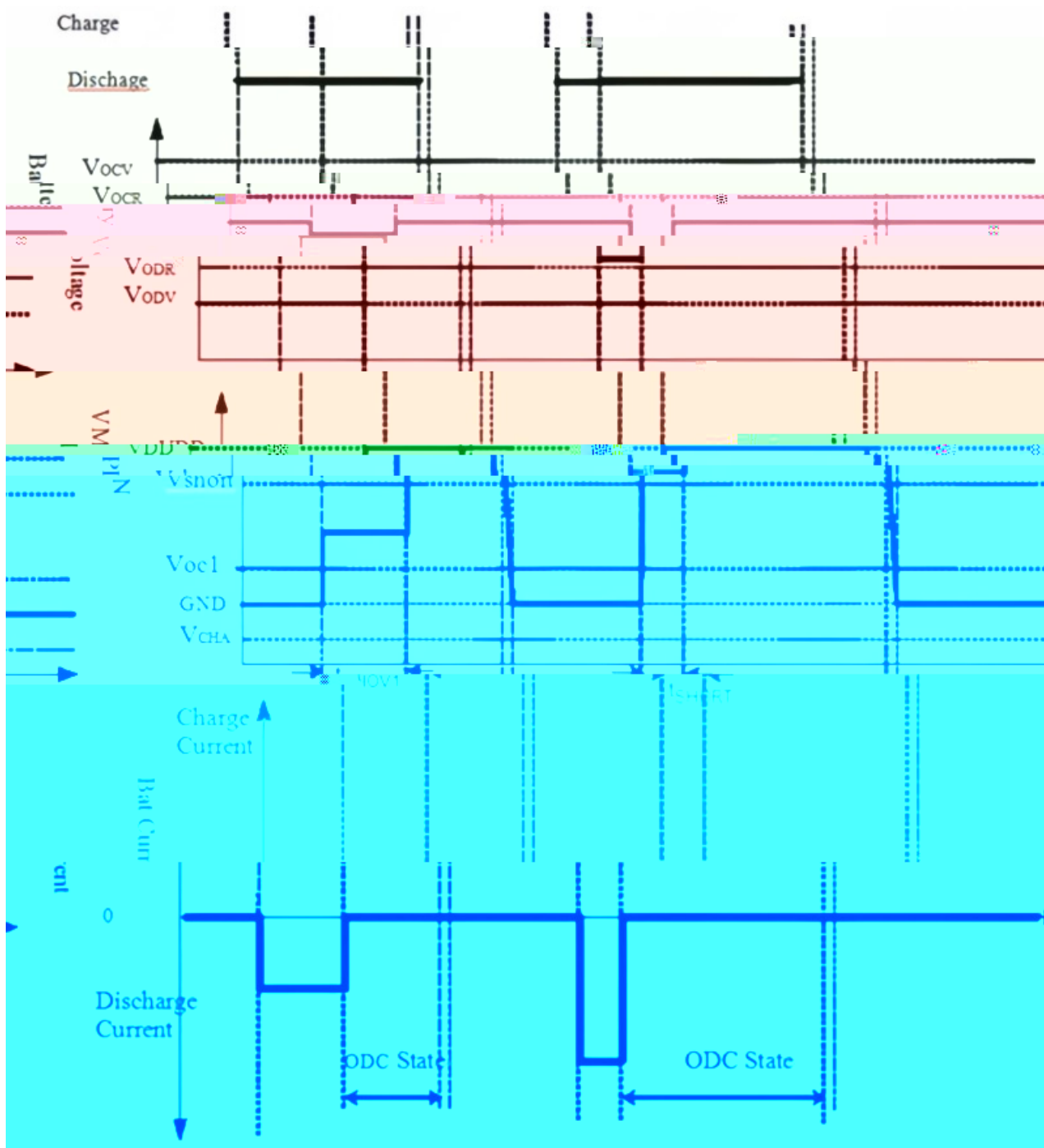
→ → / Overdischarge → Charging → Normal Operation.





/ Timing Chart

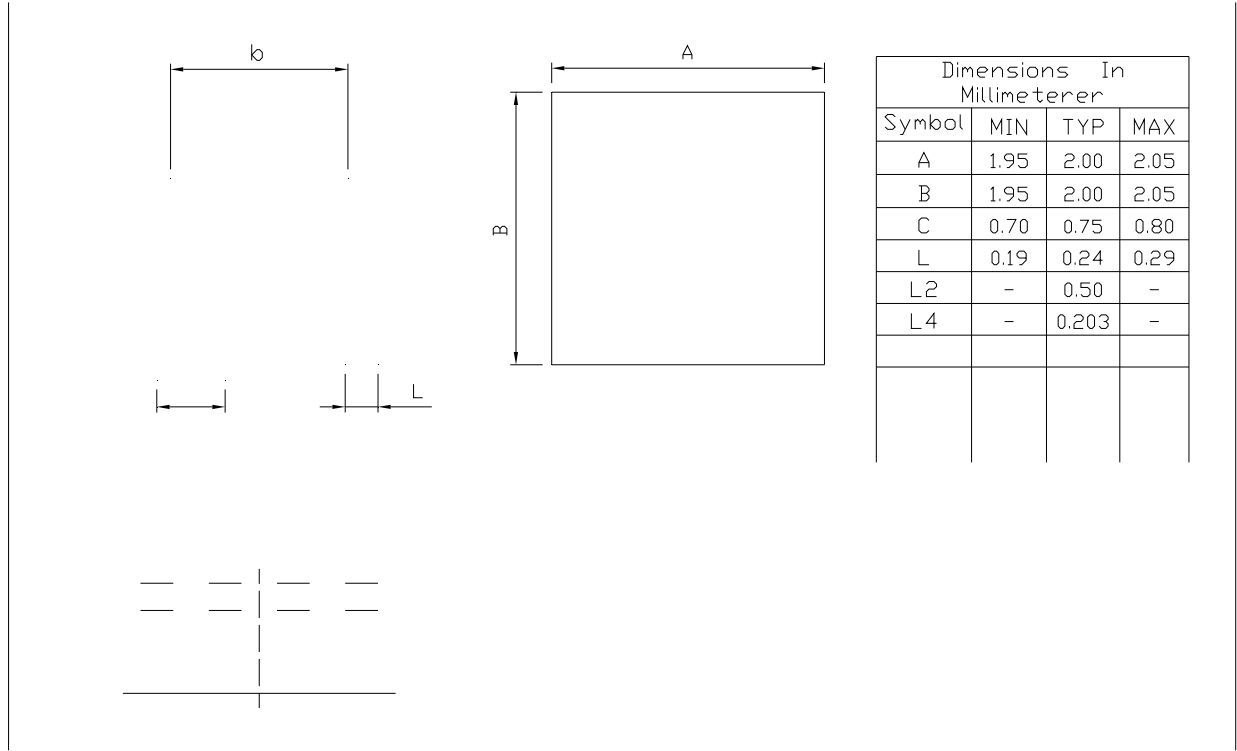
→ / Discharge Overcurrent → Normal Operation.



/ Package Dimensions

DFN2×2-8L-0.75

Unit:mm



Rev.00 202012

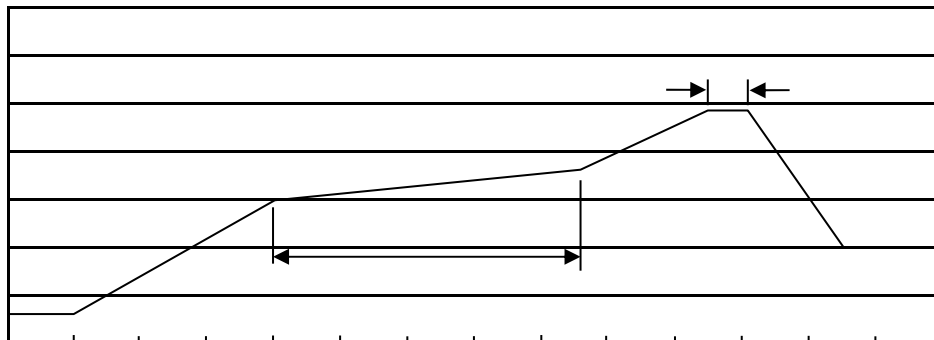
/ Marking Instructions



3130D



() / 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	Units					Dimension (unit mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
DFN2×2-8L	4,000	10	40,000	4	160,000	7 ×8	210×205×205	445×435×230

/ Notices

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