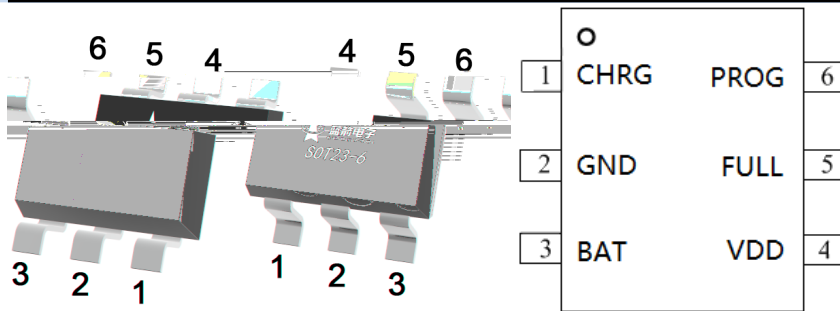


BRCL4058HMF-XX

Rev.A Jan.-2024



PIN Num.	Symbol	Function
1	CHRG	
2	GND	
3	BAT	
4	V _{DD}	
5		
6		

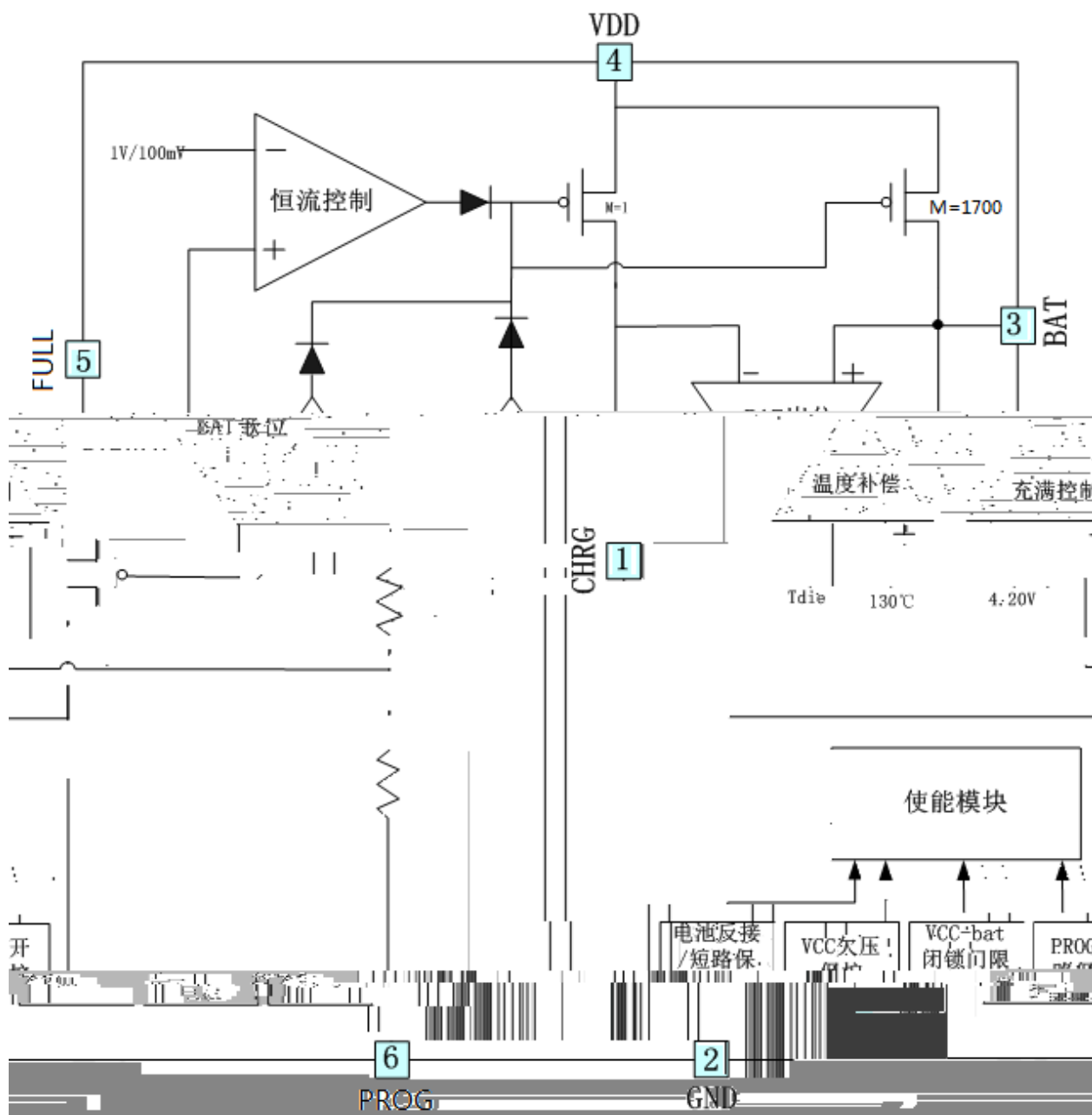
BRCL4058HMF-XX		
XX	4.0	4.0V

PARAMETER	SYMBOL	RATINGS	UNITS
Input Supply Voltage	V _{IN}	-0.3~28	V
BAT Pin Voltage	V _{BAT}	-0.3~15	
Other Pin Voltage	V _{Other}	-0.3~6.5	
Operating Ambient Temperature Range	T _A	-40~+85	°C
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55~+150	°C
Lead Temperature (Soldering, 10s)	T _{solder}	260	°C
ESD	HBM	2000	V
	MM	200	V
Continuous Output Current	I _O	800	mA

/ Electrical Characteristics(Ta=25℃,V_{IN}=5.0V,C_{IN}=10μF, C_{BAT}=10μF)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Supply Voltage	V _{IN}		4.5	5.0	6.0	V
Input Power Supply Current	I _{IN}	V _{BAT} = V _{FLOAT} +0.1V		90		μA
Input Over-Voltage Protection Voltage	V _{ovp}	V _{IN} from Low to High		6.5		V
Input Over-Voltage Protection Voltage Hysteresis	ΔV _{OVP}			300		mV
V _{IN} Under Voltage Lockout Threshold	V _{UVL}	V _{IN} from High to Low V _{BAT} =2.7V		3.3		V
V _{IN} Under voltage Lockout Hysteresis	ΔV _{UVL}			100		mV
Regulated Output (Float) Voltage	V _{FLOAT}	I _{BAT} =40mA	3.96	4.0	4.04	V
			4.158	4.2	4.242	
			4.307	4.35	4.394	
Recharge Battery Threshold	ΔV _{RECHRG}	V _{FLOAT} -V _{RECHRG}		150		mV
BAT Pin Current	I _{BAT}	R _{ISSET} =17k, Constant Current Mode		100		mA
		R _{ISSET} =3.4k, Constant Current Mode		500		mA
		R _{ISSET} =2.1k, Constant Current Mode		800		mA
		V _{BAT} = V _{FLOAT} , Standby Mode		2.5		μA
		Shutdown Mode (V _{BAT} =V _{FLOAT} , R _{PROG} not Connected / V _{IN} =0)		0.1		μA
		Battery Reverse Connection (V _{BAT} =-V _{FLOAT} , V _{IN} =0)		2		mA
Trickle Charge Threshold	V _{TRIKL}	V _{BAT} from Low to High		2.6		V
Trickle Charge Hysteresis	ΔV _{TRIKL}			200		mV
Trickle Charge Current	I _{TRIKL}			10		%I _{BAT}
Termination Current Threshold	I _{EOC}			10		%I _{BAT}
CHRG/FULL Pin Pull-Down Current	I _{CHRG}	V _{CHRG} =5V			5	μA
CHRG/FULL Pin Output Low Voltage	V _{CHRG}	I _{CHRG} =5mA			0.1	V
ISSET Pin Voltage	V _{ISSET}	R _{ISSET} =10k, Constant Current Mode		1		V
VIN-VBAT Locking Threshold Voltage	V _{ASD}	V _{BAT} =3.6V V _{IN} :3.5V→4V		110		mV
		V _{BAT} =3.6V V _{IN} :4V→3.5V		60		mV
Junction Temperature in Limited Temperature Mode	T _{LIM}			125		℃

/ Principle block diagram



/ Function description

	3.3V	6.5V	IC	BAT	2.6V
			BRCL4058HMF-XX	1/10 ISET	
		BAT	2.6V		CC
ISET		BAT		BRCL4058HMF-XX	
CV		CV		1/10	
			1/10		
	ISET		ISET	100mV	tTERM
1ms					
ISET					
		ISET			
(V _{ISET} =1V)					
			$I_{BAT} = \frac{1700 \times V_{ISET}}{R_{ISET}}$		
		BRCL4058HMF-XX	BAT		
V _{Float} -150mV		80%	90%		
	UVLO				
			VIN		
	UVLO		UVLO		VIN
110mV					
			BRCL4058HMF-XX		
	BAT	GND	300mV	BAT	GND
80mV					

/ Function description

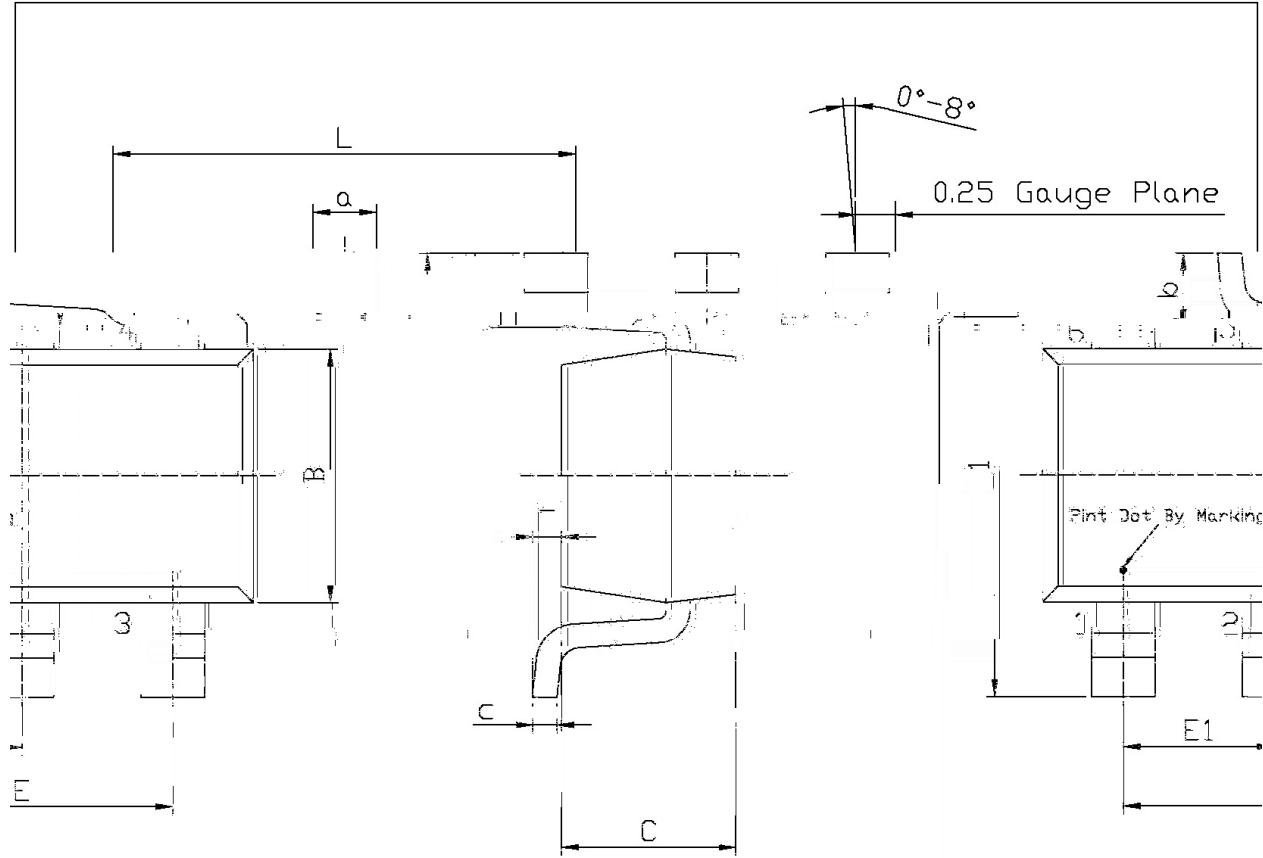
CHRG FULL

	CHRG

125

BRCL4058HMF-XX
BRCL4058HMF-XX

I Package Dimensions



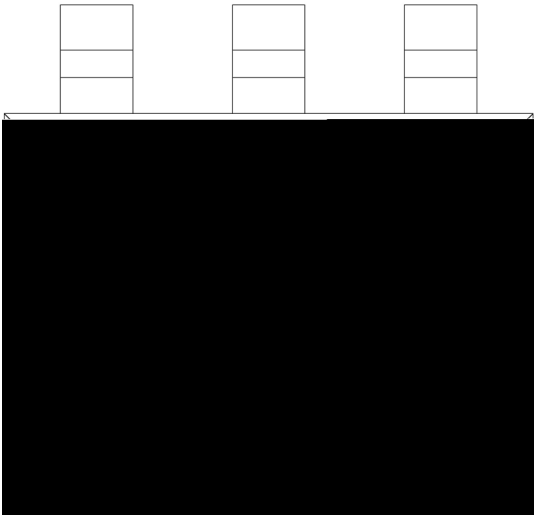
Unit: mm

Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
Min	Max		Min	Max
2.82	3.32	E1	0.85	1.05
1.50	1.70	a	0.35	0.50
0.90	1.30	c	0.10	0.20
2.60	3.00	b	0.35	0.55
1.80	2.00	F	0	0.15

Symbol
L
B
C
L1
E

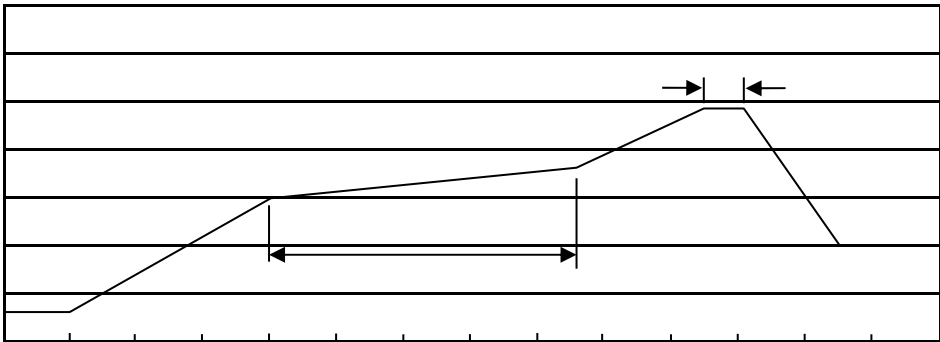
SOT23-6

/ Marking Instructions



BRCL4058HMF-4.0	4058H-40/****
BRCL4058HMF-4.2	4058H-42/****
BRCL4058HMF-4.35	4058H-435/****

() / 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
SOT23-5/6	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×435×230

/ Notices