/ Descriptions

BRCL4079ME-4.2 /
BRCL4079ME-4.2 5V USB

MOSFET

4.2V
1/10 BRCL4079ME-4.2

BRCL4079ME-4.2 SOT23-5
-40°C +85°C

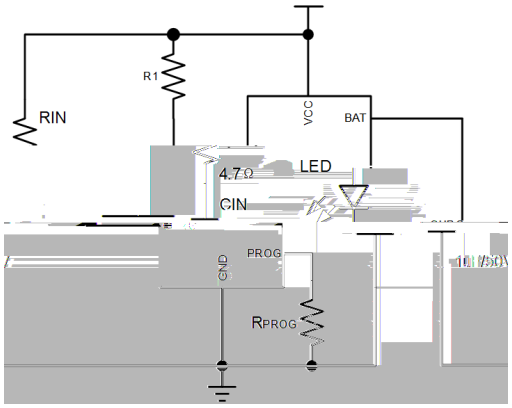
/ Features

- 36V 6.1V
- 600mA
- MOSFET
- /
- USB
-
- 4.2V 1%
- 2.5V
- C/10
- 55μA
-
-
- SOT23-5

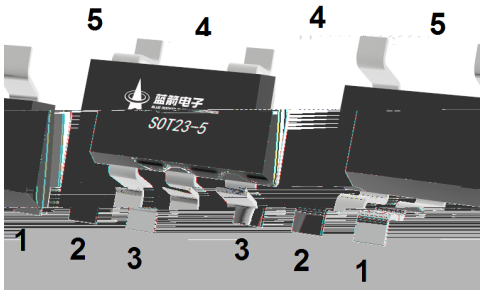
/ Applications

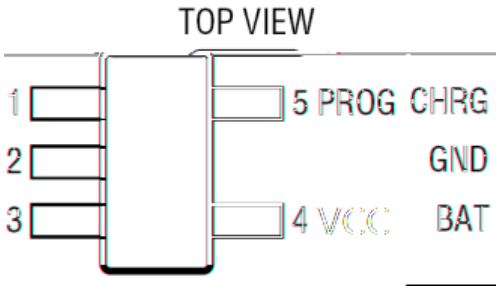
- PDA MP3
-
-
-

/ Application Circuit



/ Pinning





PIN Num.	Symbol	Function
1	CHRG	
2	GND	
3	BAT	
4	VCC	
5	PROG	

/ Absolute Maximum Ratings(Ta=25)

PARAMETER	SYMBOL	RATINGS	UNITS
Input Pin Voltage	V_{VCC}	-0.3~36	V
BAT Pin Voltage	V_{BAT}	-4.2~18	
Other Pin Voltage	V_{PROG}	-0.3~5.5	
CHRG Pin Voltage	V_{CHRG}	-0.3~13	
Storage Temperature	T_{stg}	-65~+150	
Junction Temperature	T_J	150	
Operating Ambient Temperature Range	T_{OP}	-40~+85	
Lead Temperature (Soldering, 10s)	T_{solder}	260	
Power onsumption	P_D	0.3	W
Junction-to-Ambient	$R_{\theta JA}$	250	/W
ESD	HBM	2000	V
	CDM	1000	V

/ Electrical Characteristics(V_{IN}=5V, V_{BAT}=3.6V, Ta=25 , unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage Range	V_{CC}		4.5	5	36	V
Quiescent Supply Current	I_Q	Charge Mode R_{PROG}=2.0k		240	360	μA
		Standby Mode (Charge Terminated)		220	300	μA
		Shutdown Mode (R_{PROG} Not Connected, V_{CC} < V_{BAT}, or V_{CC} < V_{UV})		220	300	μA
		OVP state		120	250	μA
Regulated Output (Float)Voltage	V_{FLOAT}	0 ≤T_A≤85 , R_{PROG} = 2.0k	4.158	4.200	4.242	V
BAT Pin Current	I_{BAT}	R_{PROG} =2.0k, Current Mode	427.5	475	522.5	mA
		Standby Mode, V_{BAT} = 4.2V	0	-2.5	-6	μA
		Shutdown Mode (R_{PROG} Not Connected)		±1	±2	μA
		Sleep Mode, V_{CC} = 0V		-1	-2	μA
Trickle Charge Current	I_{TRIKL}	V_{BAT} < V_{TRIKL}, R_{PROG} = 2.0K	35	47.5	60	mA
Trickle Charge Threshold Voltage	V_{TRIKL}	R_{PROG} = 2.0k, VBAT Rising	2.3	2.5	2.7	V
Trickle Charge Hysteresis Voltage	V_{TRHYS}	R_{PROG} =2.0k	120	160	200	mV
VCC Undervoltage Lockout Threshold	V_{UV}	From V_{CC} Low to High	3.5	3.7	3.9	V
VCC Undervoltage Lockout Hysteresis	V_{UVHYS}	From V_{CC} High to Low	100	200	300	mV
VCC-VBAT Lockout Threshold Voltage	V_{ASD}	V_{CC} from Low to High	100	125	150	mV
		V_{CC} from High to Low	30	65	100	mV
C/10 Termination Current Threshold	I_{TERM}	R_{PROG} = 2.0k	35	47.5	60	mA
PROG Pin Voltage	V_{PROG}	R_{PROG} = 2.0k, Current Mode	0.9	1.0	1.1	V
CHRG Pin Output Low Voltage	V_{CHRG}	I_{CHRG} = 5mA		0.3	0.6	V
Recharge Battery Threshold Voltage	ΔV_{RECHRG}	V_{FLOAT} - V_{RECHRG}	100	150	200	mV
Junction Temperature in Constant Temperature Mode	T_{LIM}			145		
Soft-Start Time	t_{SS}	I_{BAT} = 0 to I_{BAT} =950V/R_{PROG}		20		μs
Recharge Comparator Filter Time	$t_{RECHARGE}$	V_{BAT} High to Low	0.8	1.8	4.0	ms
Termination Comparator Filter Time	t_{TERM}	I_{BAT} Falling Below I_{CHG}/10	0.8	1.8	4.0	ms
PROG Pin Pull-Up Current	I_{PROG}			1.0		μA

/ Principle block diagram

/ Function description

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BRCL4079ME-4.2 / PCB
600mA ±1% BRCL4079ME-4.2 P
MOSFET
BRCL4079ME-4.2 USB

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VCC UVLO 1% PROG
BAT 2.5V
BRCL4079ME-4.2 1/10
BAT 2.5V BAT
4.2V BRCL4079ME-4.2
1/10

◆

PROG PROG 950

$R_{PROG}=950/I_{CHG}$ $I_{CHG}=950/R_{PROG}$

PROG BAT

$I_{BAT}= (V_{PROG}\times 950)/R_{PROG}$

/ Function description

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1/10

PROG PROG 100mV tTERM

BRCL4079ME-4.2 55μA

C/10

BAT PROG 1/10

100mV 1.8ms t_{TERM}

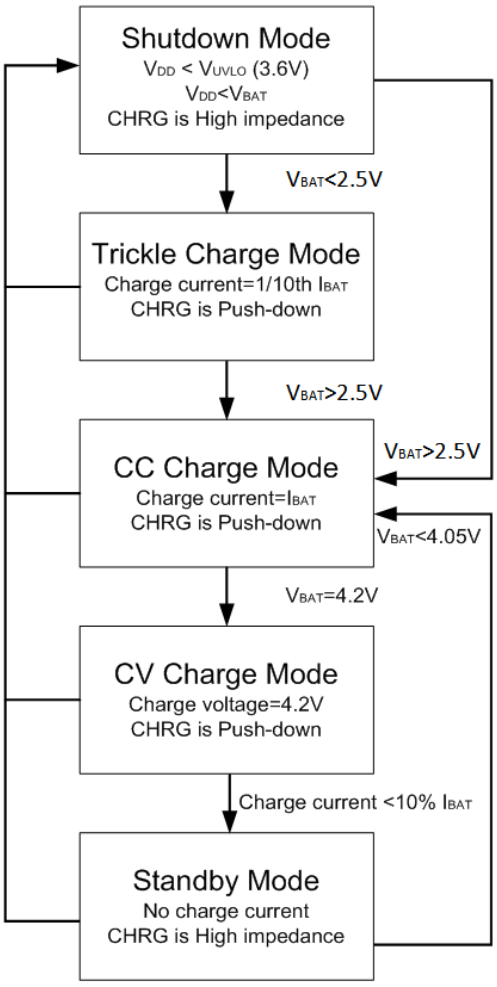
1/10 BRCL4079ME-4.2 BAT

BAT

BRCL4079ME-4.2 BAT 4.05V

V_{RECHRG}

PROG



/ Function description

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BRCL4079ME-4.2 CHRG BRCL4079ME-4.2
CHRG CHRG CHRG

BAT 10μF LED LED 1-4

	LED
UVLO	
BAT 10μF	LED T=1-4s

◆

145°C
BRCL4079ME-4.2
BRCL4079ME-4.2

◆ **UVLO**

VCC
UVLO 200mV MOSFET VCC
30mV UVLO UVLO
VCC 100mV

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BRCL4079ME-4.2 1.8ms $t_{RECHARGE}$
BAT 4.05V 80% 90%

CHRG

/ Function description

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PROG PROG

20k

PROG 100kHz

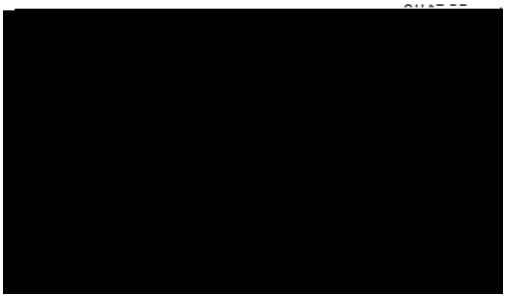
PROG CPROG RPROG

$$R_{PROG} \leq \frac{1}{2\pi \cdot 10^5 \cdot C_{PROG}}$$

BAT

PROG RC PROG

10k



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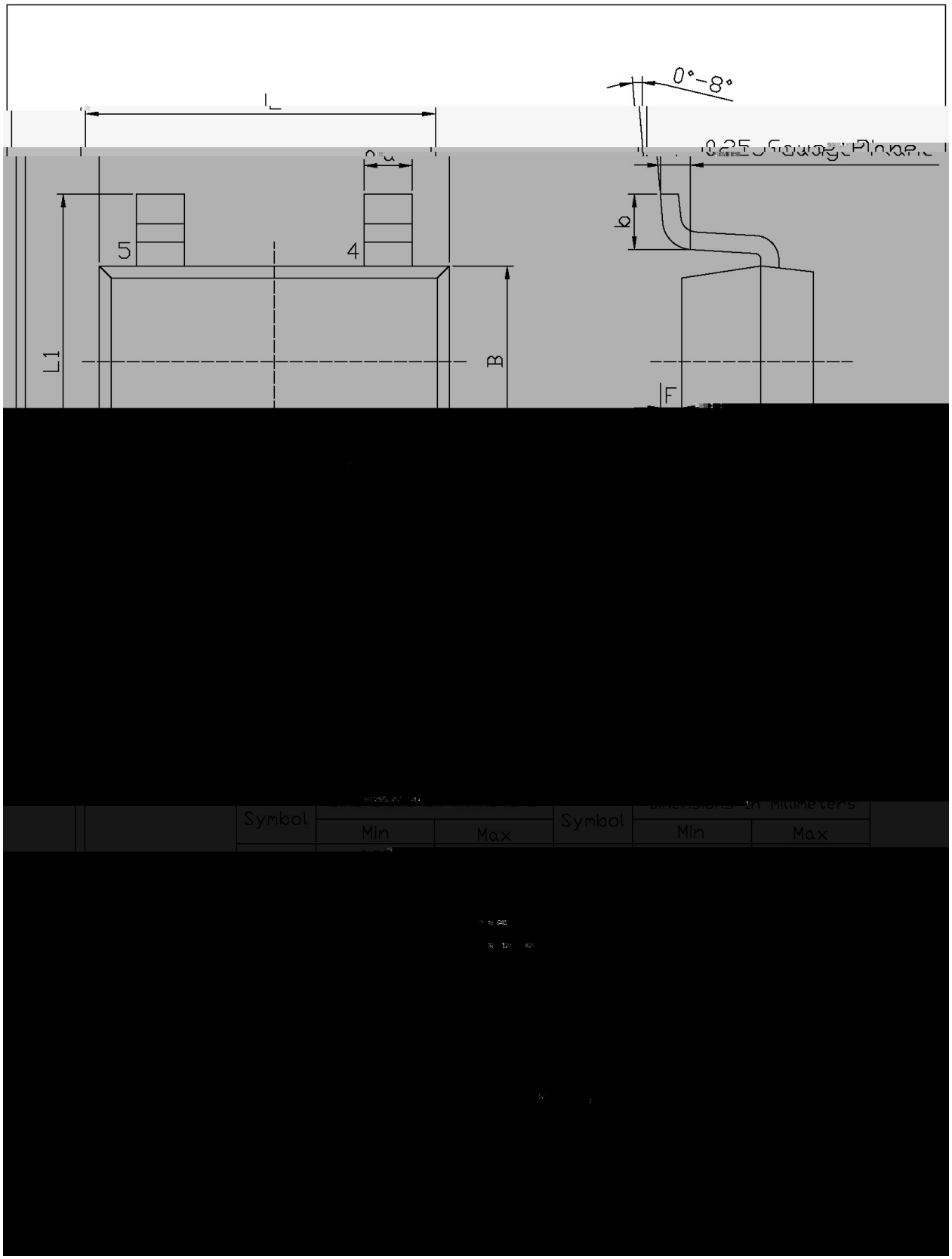
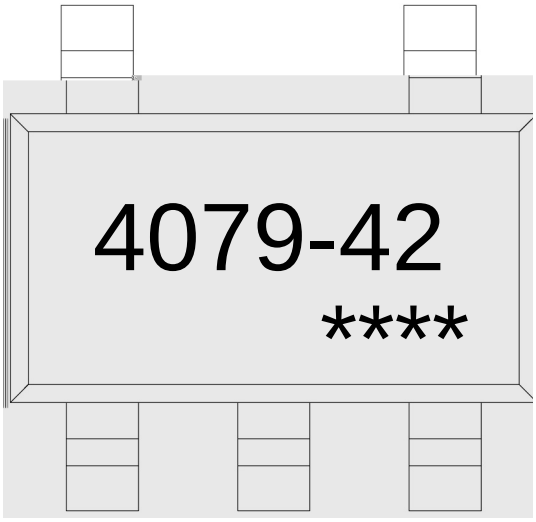
PCB P_D

$$T_J = P_D \times {}_{JA} + T_A$$

/ Package Dimensions



/ Marking Instructions



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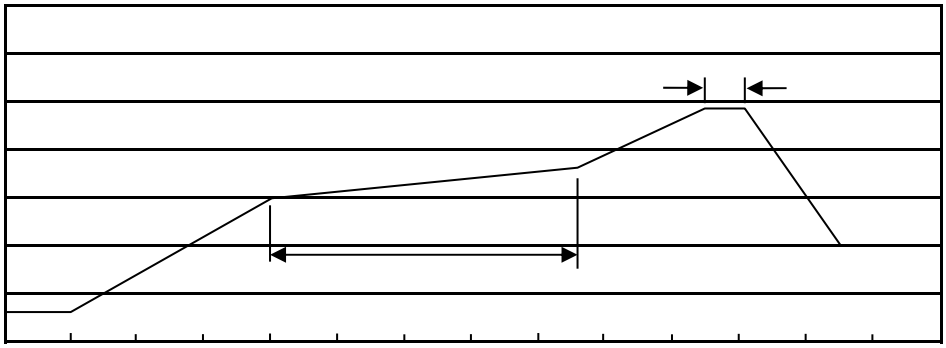
( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



		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 mm³)
	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

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