/ Descriptions

BRCL4058PZZ-4.2

BRCL4058PZZ-4.2 /
BRCL4058PZZ-4.2 USB
BRCL4058PZZ-4.2 PMOSFET

4.2V PROG 1.0A
BRCL4058PZZ-4.2 2 A
BRCL4058PZZ-4.2

BRCL4058PZZ-4.2 DFN 6 PCB
BRCL4058PZZ-4.2 -40 C to +85 C

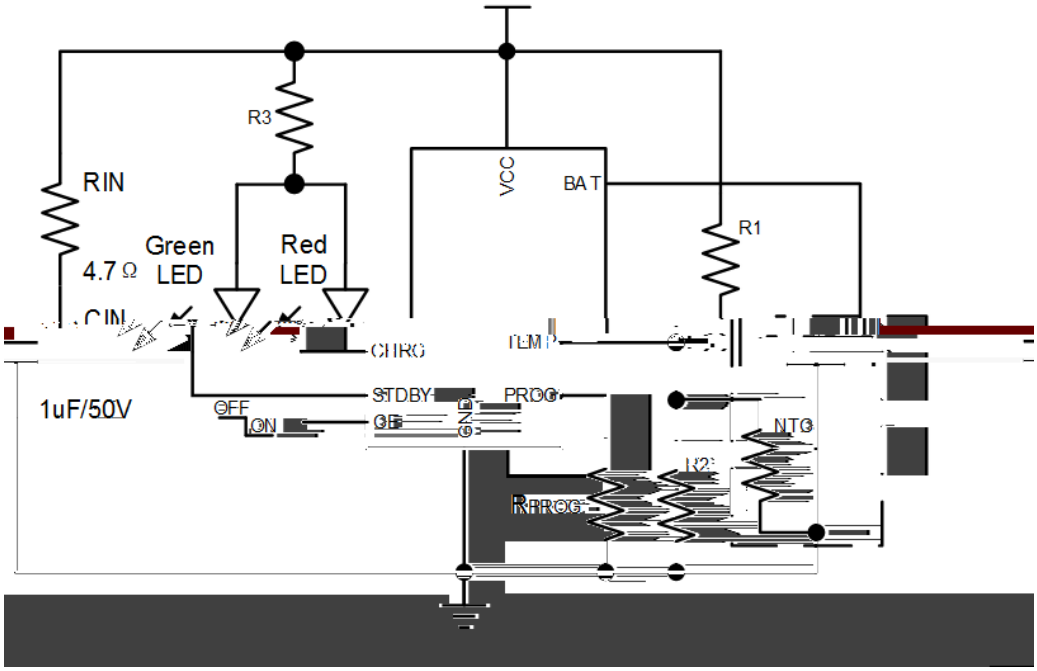
/ Features

- 36V 6.1V
- 1% 4.2V
-
- BAT-VDD
- <2 A
- 55 A
- 0V
- 1.0A
- / /
-
-
-
-
-
- RoHS

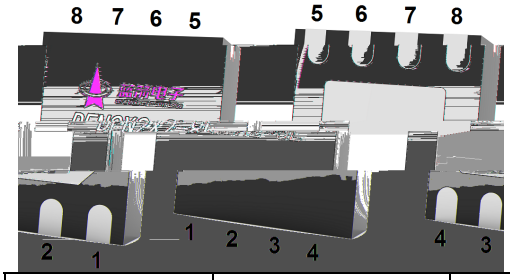
/ Applications

-
-
-
-
-

/ Application Circuit



/ Pinning



PIN Num.	Symbol	Function
1	TEMP	
2		
3	GND	
4	VCC	
5	BAT	
6	STDBY	
7	CHRG	
8	CE	

/ Absolute Maximum Ratings(Ta=25)

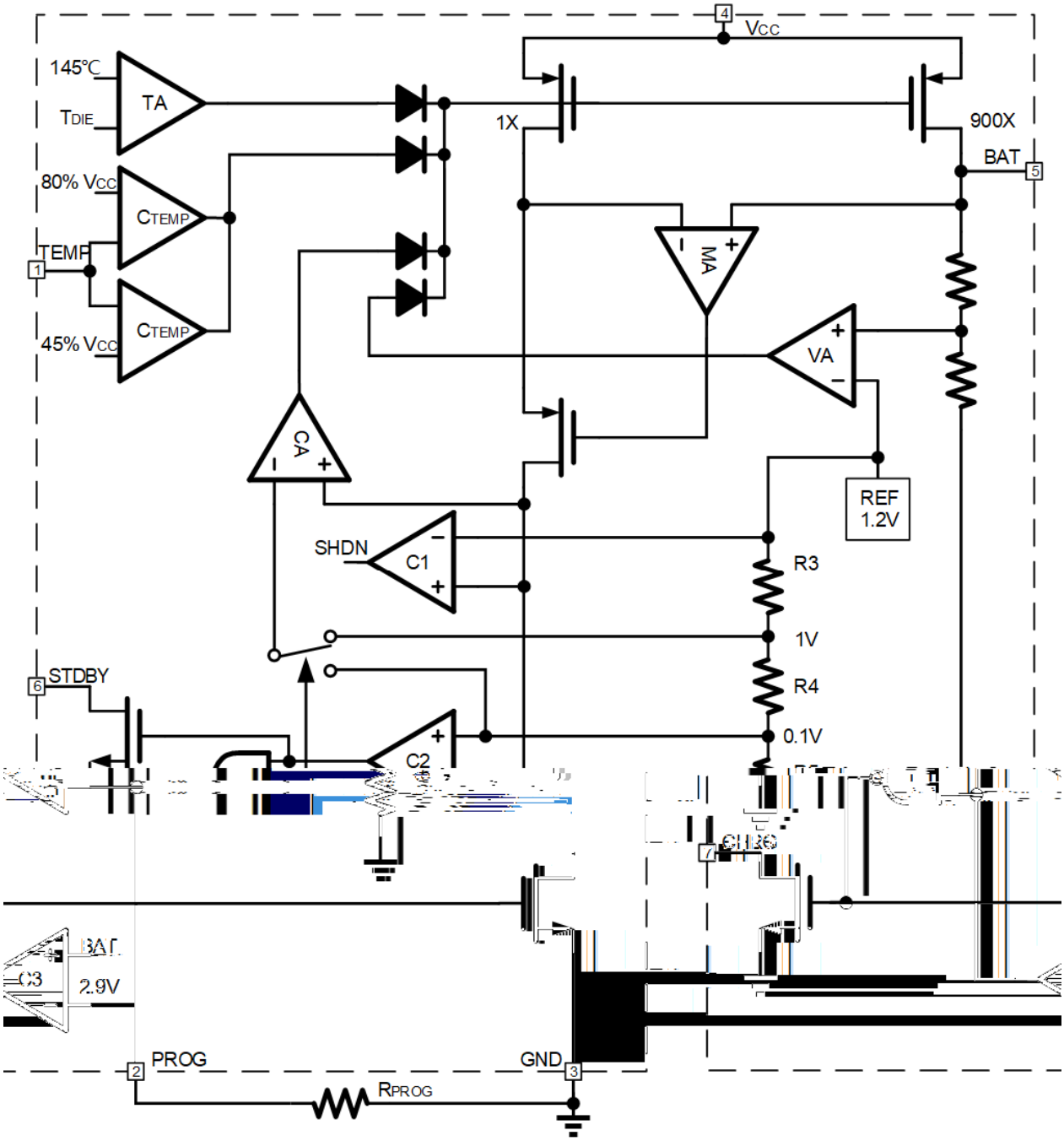
PARAMETER	SYMBOL	RATINGS	UNITS
VCC Pin Voltage	V_{VCC}	-0.3~36.0	V
BAT Pin Voltage	V_{BAT}	-4.2~18.0	
CHRG/STDBY Pin Voltage	$V_{CHRG/STDBY}$	-0.3~13.0	
PROG Pin Voltage	V_{PROG}	-0.3~5.5	
Other Pin Voltage	$V_{TEMP/GND/CE}$	-0.3~5.5	
Operating Ambient Temperature Range	T_{OP}	-40~+85	°C
Storage Temperature	T_{stg}	-65~+150	°C
Lead Temperature (Soldering, 10s)	T_{solder}	260	°C
ESD	HBM	4000	V
	CDM	1000	V

/ Electrical Characteristics(V_{CC}=5V,V_{BAT}=3.6V,Ta=25)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Supply Voltage	V_{CC}		4.5	5.0	36.0	V
Input Power Supply Current	I_{CC}	Charging mode (R_{PROG}=1.02K)		260	360	A
		Standby mode, charging terminated		180	300	A
		Shutdown mode (R_{PROG} not connected, V_{CC}<V_{BAT},or V_{CC} V_{UV})		180	300	A
		OVP mode(V_{CC}=30V)		180	300	A
Regulated Output (Float) Voltage	V_{FLOAT}	0 ≤ T_A ≤ 85 , R_{PROG}=1.02k	4.158	4.2	4.242	V
BAT Pin Current	I_{BAT}	R_{PROG}=1.02k Current mode	900	1000	1100	mA
		Standby mode, V_{BAT}=4.2V	0	-2.5	-6	A
		Shutdown mode (R_{PROG} not connected)		± 1	± 2	A
		Sleep mode,V_{CC}=0V		-1	-2	A
Trickle Charge Current	I_{TRIKL}	V_{BAT} V_{TRIKL} R_{PROG}=1.02k	65	100	135	mA
Trickle Charge Threshold	V_{TRIKL}	R_{PROG}=1.02k V_{BAT} from Low to High	2.3	2.5	2.7	V
Trickle Charge Hysteresis	V_{TR_HYS}	R_{PROG}=1.02k	120	160	200	mV
V_{CC} Under Voltage Lockout Threshold	V_{CC_UV}	V_{CC} from Low to High	3.5	3.7	3.9	V

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
V_{CC} Under voltage Lockout Hysteresis	$V_{CC\_UV\_HYS}$		100	200	300	mV
V_{CC}-V_{BAT} Lockout Threshold	V_{ASD}	V_{CC} from Low to High	100	125	150	mV
		V_{CC} from High to Low	30	65	100	mV
C/10 Charging Termination Current	I_{TERM}	R_{PROG}=1.02k	90	100	110	mA
R_{PROG} voltage at Constant Current Mode	V_{PROG}	R_{PROG}=1.02k, Current mode	0.9	1.0	1.1	V
CHRG outputs low voltage	V_{CHRG}	I_{CHRG}=5mA		0.3	0.6	V
STDBY outputs low voltage	V_{STDBY}	I_{STDBYG}=5mA		0.3	0.6	V
Rechargeable Battery Voltage	V_{RECHRG}	V_{FLOAT}-$V_{RECHARH}$	100	150	200	mV
Junction temperature in limited temperature mode	T_{LIM}			145		
Static Drain-Source On-Resistance	$R_{DS(on)}$			500		m
Soft start time	t_{ss}	I_{BAT} = 0 to I_{BAT} =900V/R				

/ Principle block diagram



/ Function description

◆

BRCL4058PZZ-4.2 /
1.0A PCB 1%
BRCL4058PZZ-4.2 P MOSFET
BRCL4058PZZ-4.2 USB

◆

VCC UVLO PROG 1%
BAT V_{TRIKL}
BRCL4058PZZ-4.2 1/10

BAT V_{TRIKL} BAT
V_{FOLOAT} BRCL4058PZZ-4.2
1/10

◆

PROG PROG
900

$R_{PROG}=900/I_{CHG}$ $I_{CHG}=900/R_{PROG}$

BAT PROG

$I_{BAT}=(V_{PROG}$ 900$)/R_{PROG}$

0.5A

R_{PROG}

R_{PROG}

R_{PROG}(K)	I_{CHG}(mA)

/ Function description

◆

1/10

PROG PROG 100mV t_{TERM}

1.8ms BRCL4058PZZ-4.2

55 A C/10

BAT PROG DC 1/10

100mV 1.8ms t_{TERM}

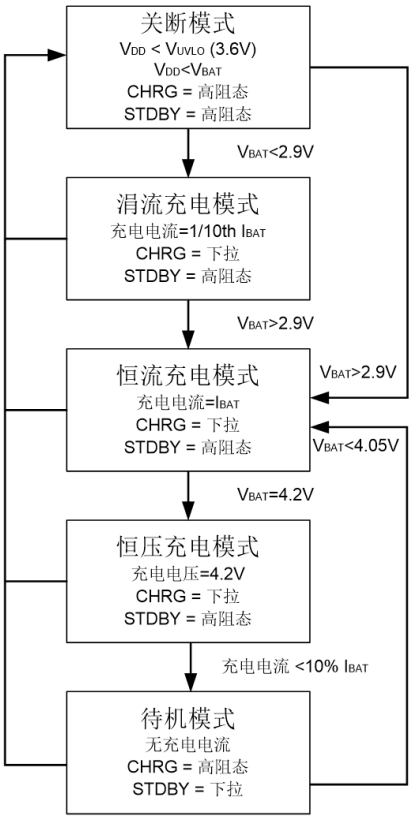
1/10 BRCL4058PZZ-4.2

BAT BAT

BRCL4058PZZ-4.2 BAT 4.05V

V_{RECHRG}

PROG



/ Function description

◆ **R1 R2**

R1 R2

TL~TH TL TH)

NTC RTL TL RTH TH RTL RTH

TL TEMP

$$VTEMPL = \frac{R2||RTL}{R1 + R2||RTL}VIN$$

TH TEMP

$$VTEMPL = \frac{R2||RTH}{R1 + R2||RTH}VIN$$

$$R1 = \frac{RTL \times RTH(k2 - k1)}{(RTL - RTH)k2 \times k1}$$

PTC

$$R1 = \frac{RTL \times RTH(k2 - k1)}{(RTH - RTL)k2 \times k1}$$

$$R2 = \frac{RTL \times RTH(k2 - k1)}{RTH(k1 - k2 \times k1) - RTL(k2 - k2 \times k1)}$$

Vcc R1 R2 RTH RTL

RTH RTL

R2 R1

R1

◆ **UVLO**

VCC

UVLO UVLO VCC

100mV

/ Function description

◆

BRCL4058PZZ-4.2 1.8ms BAT
4.05V 80% 90%

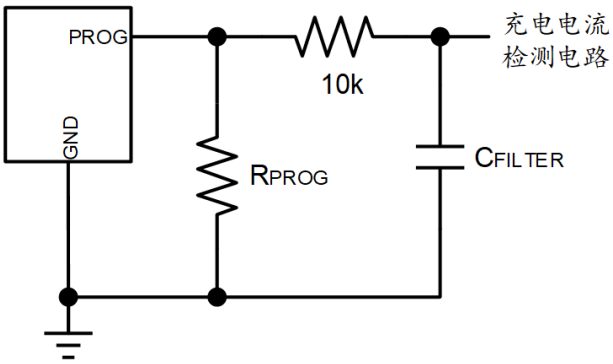
CHRG

◆

ESR
1
PROG PROG
PROG RPROG 20k PROG
PROG 100kHz
PROG CPROG RPROG

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

BAT PROG
RC PROG
10k



◆

PCB
PD

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

/ Function description

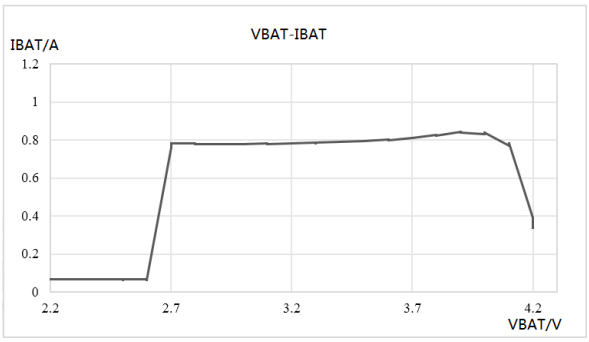
◆

IC PD V_{IN}-V_{BAT} I_{CHG} :

P_D= V_{IN}-V_{BAT} *I_{CHG}

3.6V

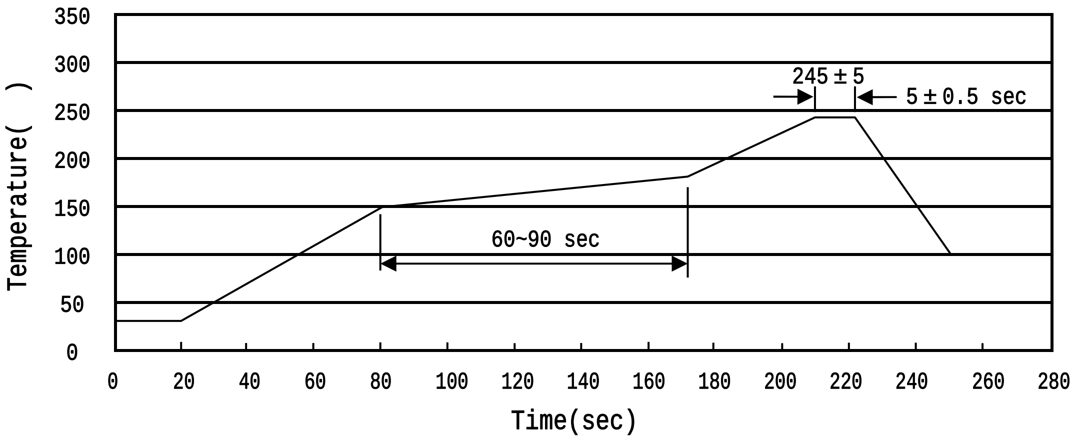
4.0V 5%~10% PD



/ Package Dimensions

/ Marking Instructions

( ) / 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)		
DFN2×2-8L	4,000	10	40,000	4	160,000	7 ×8	210×205×205	445×435×230

/ Notices

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