/ Descriptions

BRCL4079MF-4.2 / Ţ Ļ
Ţ Ẓ BRCL4079MF-4.2 ћ ц 5V USB

MOSFET ı
ў Ɑ ў 4.2V
₆ 1/10 BRCL4079MF-4.2
Ţ ı

BRCL4079MF-4.2 SOT23-6 Ţ ў
-40¯C ₆ +85¯C

/ Features

36V 6.1V
600mA
MOSFET
/
USB
ц
4.2V ў 1%
2.5V
C/10
ћ ï 55μA

SOT23-6

/ Applications

SGD P S6
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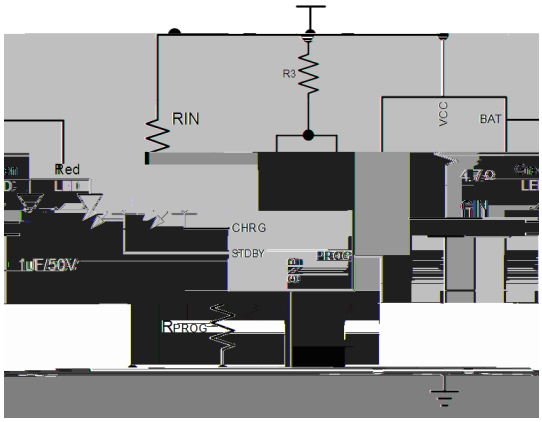
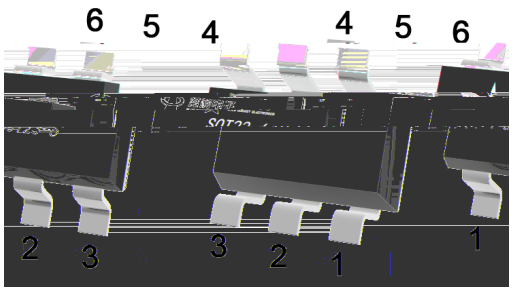
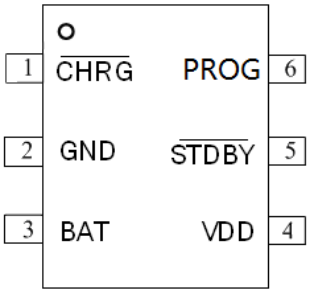






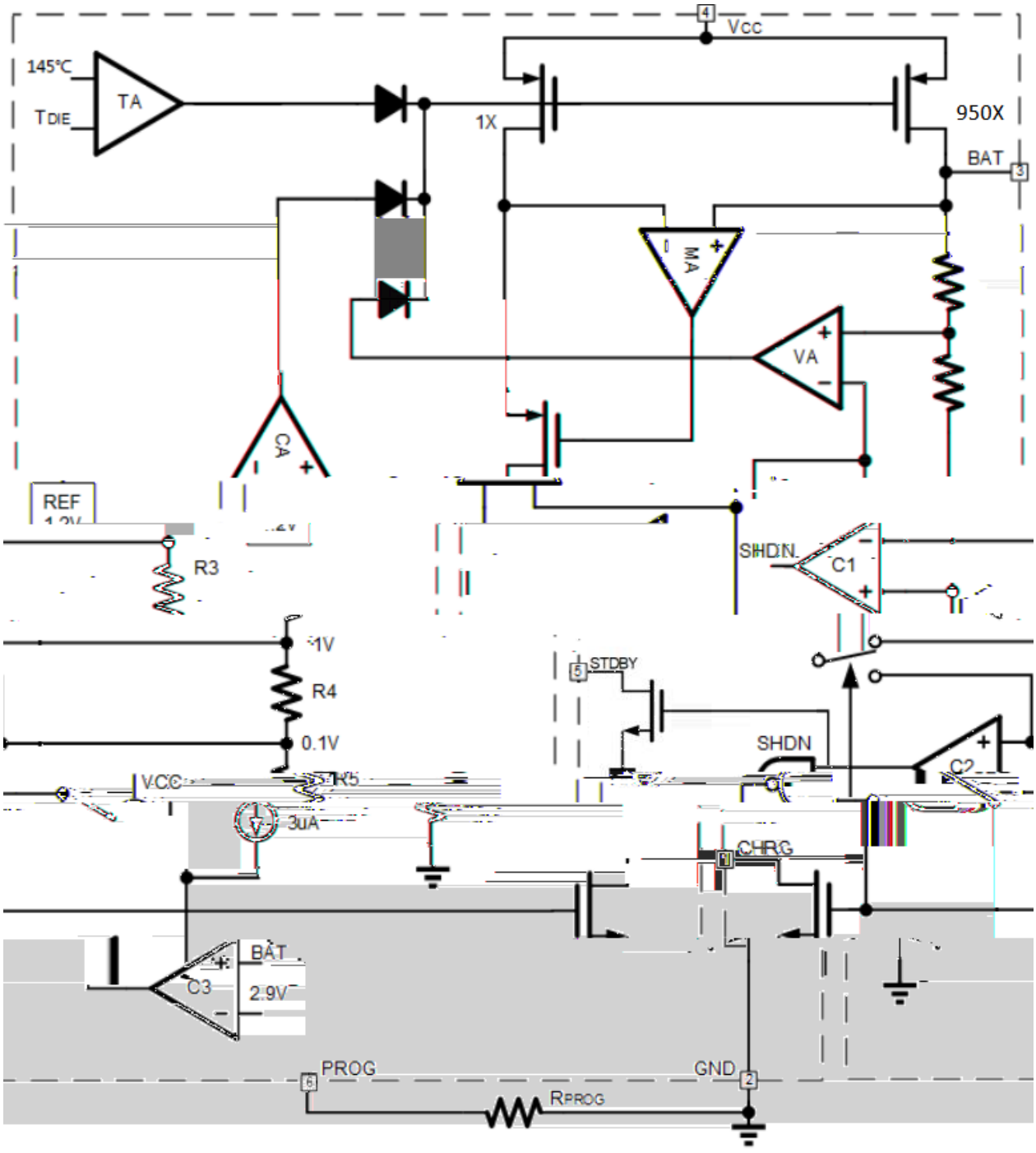
PIN Num.	Symbol	Function
1	CHRG	
2	GND	G
3	BAT	
4	VCC	
5	STDBY	
6	SUR J	

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/STDBY Pin Voltage	$V_{CHRG/STDBY}$	-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		

/ 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
STDBY Pin Output Low Voltage	V_{STDBY}	I_{STDBG} =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

BRCL4079MF-4.2 / PCB
ï 600mA ŷ ° 1% BRCL4079MF-4.2 P
ı MOSFET ψ
BRCL4079MF-4.2 USB

VCC i i UVLO i ħ 1% PROG
BAT 2.5V ï
BRCL4079MF-4.2 1/10 i
BAT i 2.5V i Ʊ BAT
ε 4.2V ζ BRCL4079MF-4.2 ï ï
1/10

PROG PROG 950
ï ч χ

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

PROG BAT ï χ

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

/ Function description

ï 1/10

PROG PROG 100mV tTERM

Ъ BRCL4079MF-4.2 Ъ 6 55µA ε χ

ï C/10 ζ

EDW i 7 SUR J ï 4243

433mY i 41; mv ε WWHUP ζ j 7

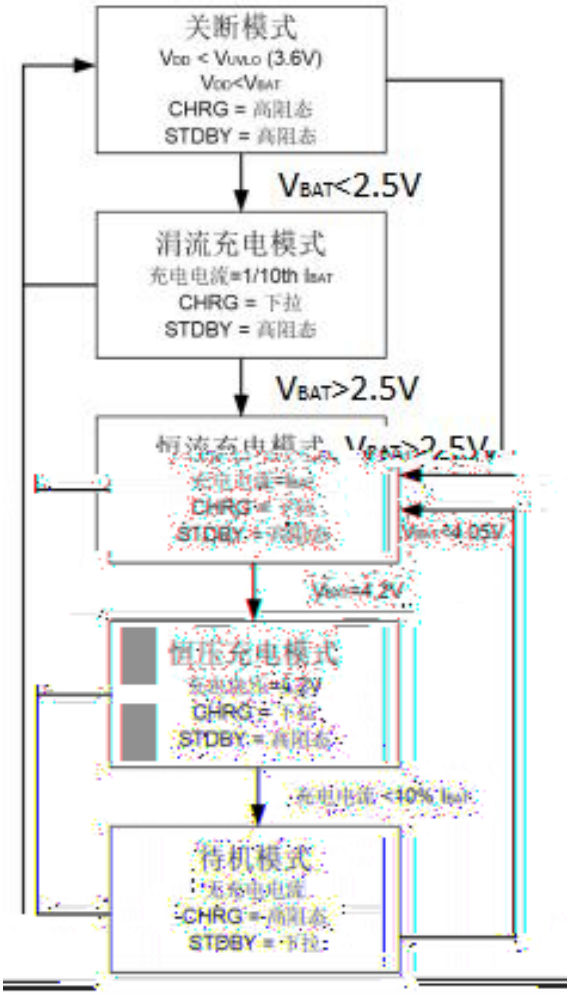
ñ ï 4243 ï EUF073:<P I0715 EDW

ï EDW i

EUF073:<P I0715 ï EDW ï 7138Y

ε YUHFKUJ ζ ï ï

ŕ SUR J Ъ ï Ɛ



EUF073:<PI0715 FKUJ VWGEY EUF073:<PI0715
FKUJ ï Ʊ FKUJ VWGEY ï
ỷ FKUJ VWGEY
EDW 43µI ħ 0HGлъ 0HG 407v

	LED CHRG	LED STDBY
UVLO		
BAT 10µF ħ	0HGлъ 0HG 407v	

Ɑ ỷ i ε 145¯C ζ i ı
BRCL4079MF-4.2 ᴘ ı ï
j BRCL4079MF-4.2 ⁞ Ɛ ε ζ ỷ
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UVLO

VCC i i ʜ
UVLO ʊ 200mV ı MOSFET VCC
ï 30mV UVLO ʜ UVLO
j ʜ VCC i i 100mV

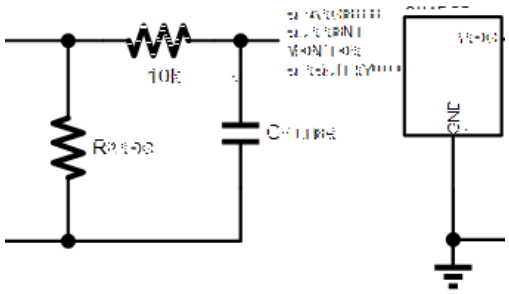
ñ BRCL4079MF-4.2 ʊ 1.8ms ε $t_{RECHARGE}$ ζ
BAT i ï 4.05V ï ε Ḿ Ẓ 80% 90% ζ
ᶇ
CHRG

/ Function description

ï ï
ï PROG j P PROG
ï 20k i
PROG i Ẓ 100kHz i
PROG ŕ CPROG ï ɯ RPROG χ

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

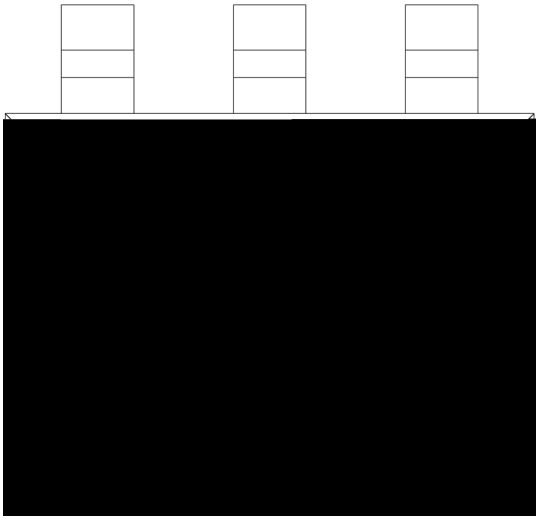
Ḿ j G ï
ʜ ʟ BAT ᵖ ʜ ï
PROG i RC ï PROG
ŕ 10k



п˜ ẙ PCB P_Dʟ
ʜ ï χ

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

/ Marking Instructions



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73 : <075 χ

**** χ Ψ

( ) /

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1 ŷ 150 180 60 90sec;

2 ŷ 245 ° 5 5 ° 0.5sec;

3 ŷ 2 10 /sec.

Note:

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245 ° 5 , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

ŷ χ 260 ° 5 χ 10 ° 1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL