

# BRCL4079ZZ-4.2

Rev.B May.-2025



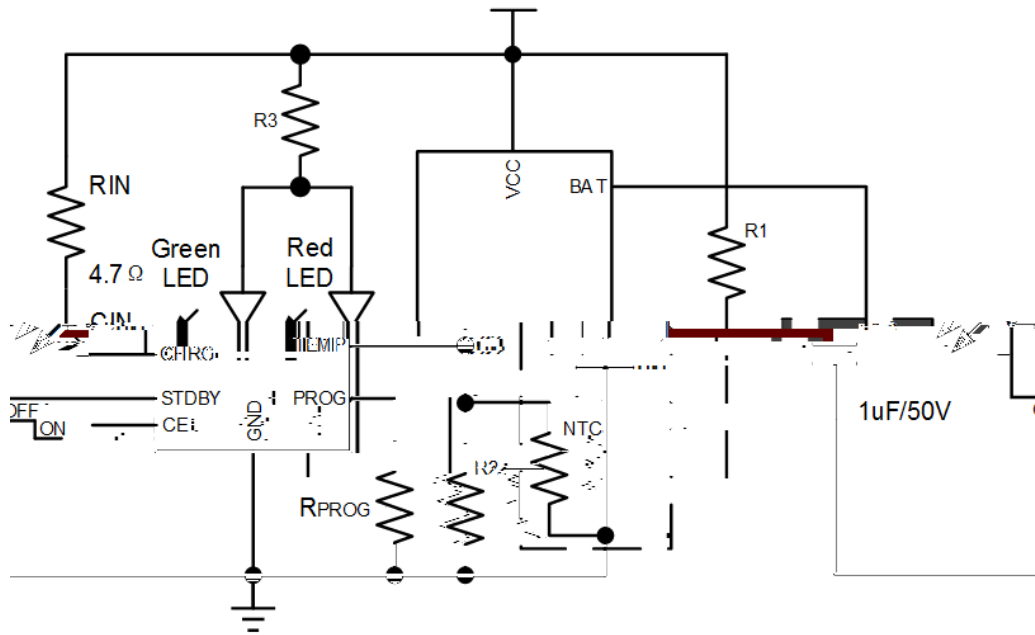
蓝箭电子  
BLUE ROCKET ELECTRONICS

DATA SHEET

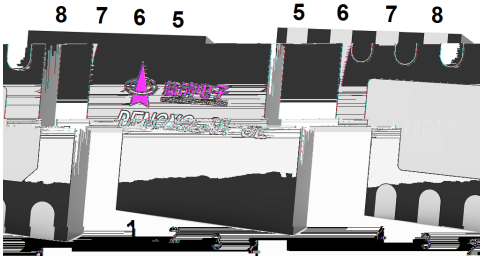
BRCL4079ZZ-4.2		
BRCL4079ZZ-4.2	/	
BRCL4079ZZ-4.2		USB
BRCL4079ZZ-4.2	PMOSFET	

# BRCL4079ZZ-4.2

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

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DATA SHEET

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	2000	V
	CDM	1000	V

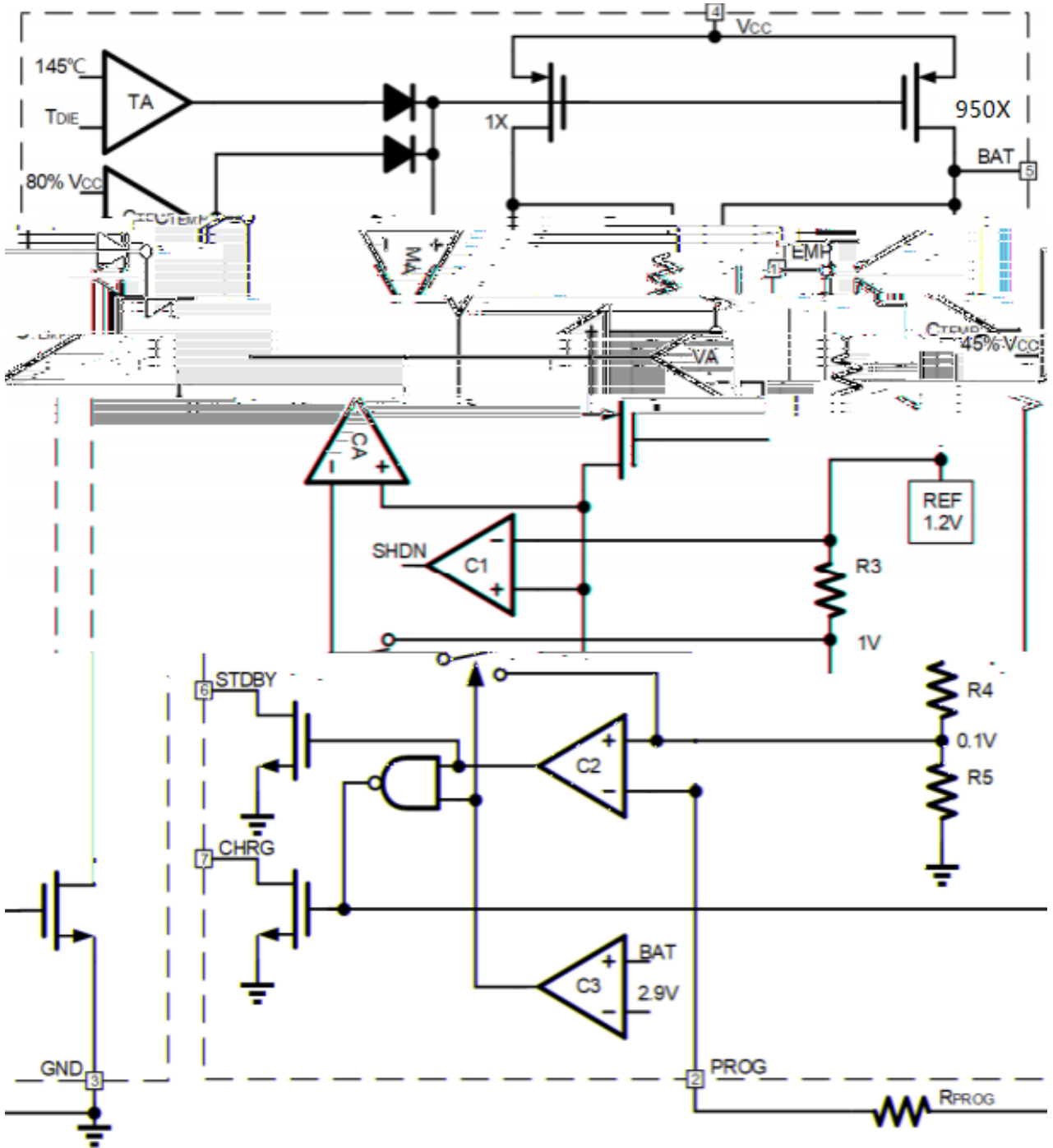
%%- !B™SsU 6xB#AcRY`ĐÂ dV ',,"4 "3

**-0.313.0**

/ Electrical Characteristics( $V_{CC}=5V, V_{BAT}=3.6V, T_a=25^{\circ}C$ )

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
V <sub>CC</sub> Under voltage Lockout Hysteresis	V <sub>CC_UV_HYS</sub>	V <sub>CC</sub> from High to Low	100	200	300	mV
V <sub>CC</sub> -V <sub>BAT</sub> Lockout Threshold	V <sub>ASD</sub>	V <sub>CC</sub> from Low to High	100	125	150	mV
		V <sub>CC</sub> from High to Low	30	65	100	mV
C/10 Charging Termination Current	I <sub>TERM</sub>	R <sub>PROG</sub> =1.0k	62	95	128	mA
R <sub>PROG</sub> voltage at Constant Current Mode	V <sub>PROG</sub>	R <sub>PROG</sub> =1.0k, Current mode	0.9	1.0	1.1	V
CHRG outputs low voltage	V <sub>CHRG</sub>	I <sub>CHRG</sub> =5mA		0.3	0.6	V
STDBY outputs low voltage	V <sub>STDBY</sub>	I <sub>STDBYG</sub> =5mA		0.3	0.6	V
Rechargeable Battery Voltage	$\Delta V_{RECHRG}$	V <sub>FLOAT</sub> -V <sub>RECHARH</sub>	100	150	200	mV
Junction temperature in limited temperature mode	T <sub>LIM</sub>			145		°C
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>			500		m
Soft start time	t <sub>ss</sub>	I <sub>BAT</sub> = 0 to I <sub>BAT</sub> = 950V/R <sub>PROG</sub>		20		μs
Recharge Comparator Filtering Time	t <sub>RECHARG</sub>	V <sub>BAT</sub> from High to Low	0.8	1.8	4.0	ms
Terminate comparator filtering Time	t <sub>TERM</sub>	I <sub>BAT</sub> drop to I <sub>CHG</sub> /10	0.8	1.8	4.0	ms
PROG pin pull-up current	I <sub>PROG</sub>			1.0		μA
TEMP high-side protection voltage	V <sub>TEMP-H</sub>			80	82	%V <sub>CC</sub>
TEMP low-side protection voltage	V <sub>TEMP-L</sub>		43	45		%V <sub>CC</sub>

/ Principle block diagram



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DATA SHEET

## / Function description

BRCL4079ZZ-4.2				/	
	1.0A			PCB	...1%
BRCL4079ZZ-4.2		P	MOSFET		
				BRCL4079ZZ-4.2	USB
VCC	UVLO		PROG		1%
				BAT	V <sub>TRIKL</sub>
		BRCL4079ZZ-4.2	1/10		
BAT	V <sub>TRIKL</sub>				BAT
	V <sub>FOLOAT</sub>	BRCL4079ZZ-4.2			
	1/10				
		PROG			PROG
950					
		R <sub>PROG</sub> =950/I <sub>CHG</sub>	I <sub>CHG</sub> =950/R <sub>PROG</sub>		
BAT		PROG			
		I <sub>BAT</sub> =(V <sub>PROG</sub> × 950)/R <sub>PROG</sub>			
0.5A					R <sub>PROG</sub>

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DATA SHEET

1/10  
PROG 100mV tTERM  
BRCL4079ZZ-4.2  
1.8ms  
55μA C/10  
BAT PROG DC 1/10  
100mV 1.8ms tTERM  
1/10 BRCL4079ZZ-4.2  
BAT  
BAT  
BRCL4079ZZ-4.2 BAT 4.05V  
VRECHRG PROG

/ Function description

BRCL4079ZZ-4.2	CHRG STDBY	BRCL4079ZZ-4.2
CHRG	CHRG	STDBY
TEMP	CHRG STDBY	BAT 10μF
LED LED 1-4s		
	C<; : ? I >	C<; JK; 9P
98K (' u= ŽK<D G= >E ; ž	C<; C<;	(\$+s

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BRCL4079ZZ-4.2

BRCL4079ZZ-4.2

	BRCL4079ZZ-4.2	
TEMP	TEMP	NTC
BRCL4079ZZ-4.2	TEMP	VLOW VHIGH
80%× Vcc	BRCL4079ZZ-4.2	VLOW 45%× Vcc VHIGH
TEMP	VTEMP<VLOW VTEMP>VHIGH	
TEMP	VTEMP VLOW VHIGH	TEMP

/ Function description

R1 R2

R1 R2

NTC    RTL    TL    RTH    TH    RTL    RTH  
 TL    TEMP

$$V_{TEMPL} = \frac{R2 || RTL}{R1 + R2 || RTL} V_{IN}$$

TH    TEMP

$$V_{TEMPH} = \frac{R2 || RTH}{R1 + R2 || RTH} V_{IN}$$

$$V_{TEMPH} = V_{HIGH} = k2 \times V_{CC} (k2 = 0.8)$$

$$V_{TEMPL} = V_{LOW} = k1 \times V_{CC} (k1 = 0.45)$$

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

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

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

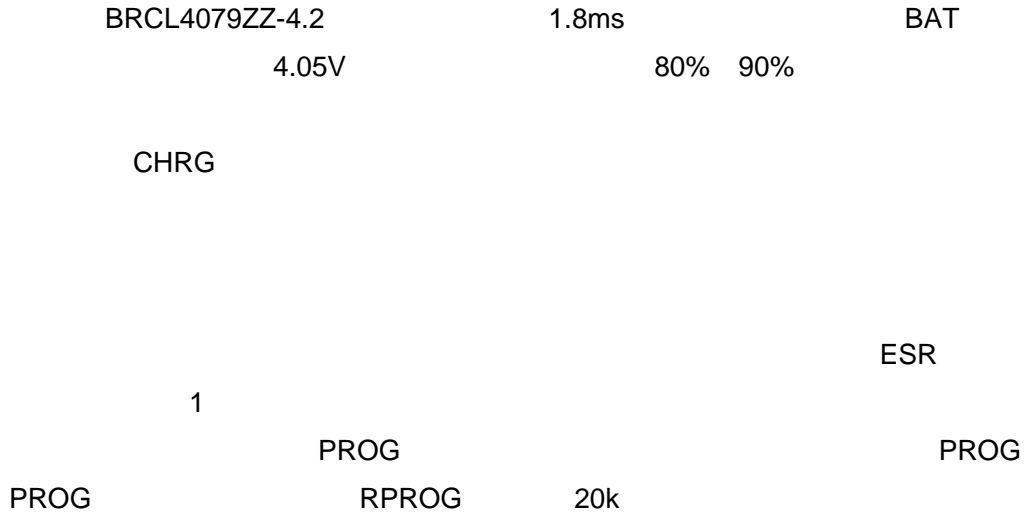
VCC

UVLO  
100mV

UVLO

VCC

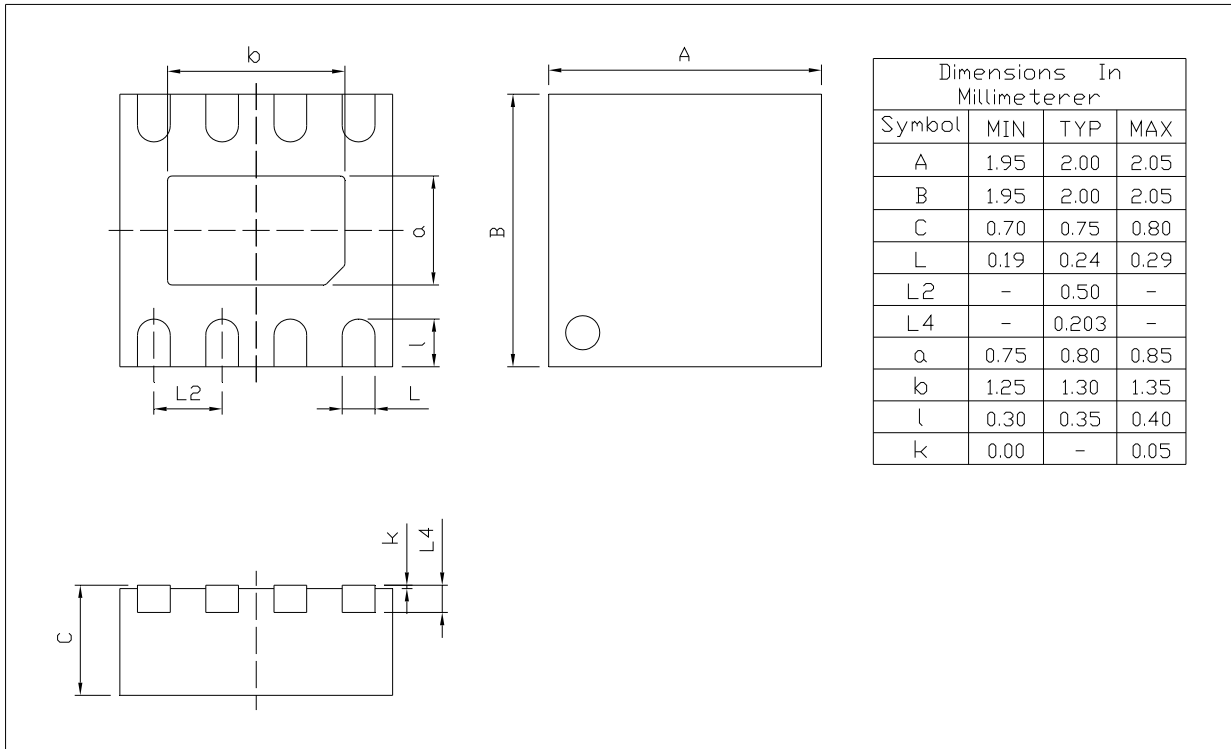
Ç Awg CD L – FROG • A Y° @•À†Op@†, •P



**/ Package Dimensions**

DFN2x2-8L-0.75

Unit:mm



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/ Marking Instructions



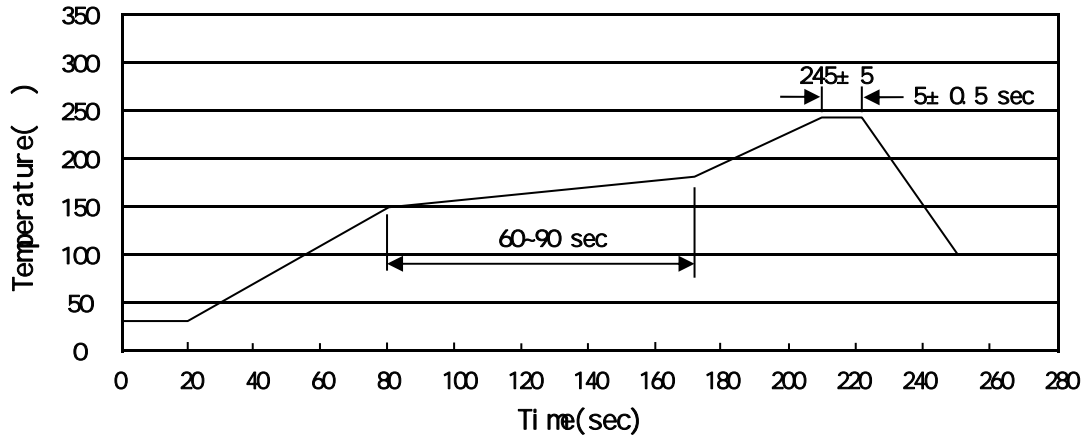
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Note:

- 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 <sup>3</sup> )		
DFN2x2-8L	4,000	10	40,000	4	160,000	7 x8	210x205x205	445x435x230

/ Notices

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