BRCL4079SE-4.2

BRCL4079SE-4.2 /

BRCL4079SE-4.2 USB

BRCL4079SE-4.2 PMOSFET

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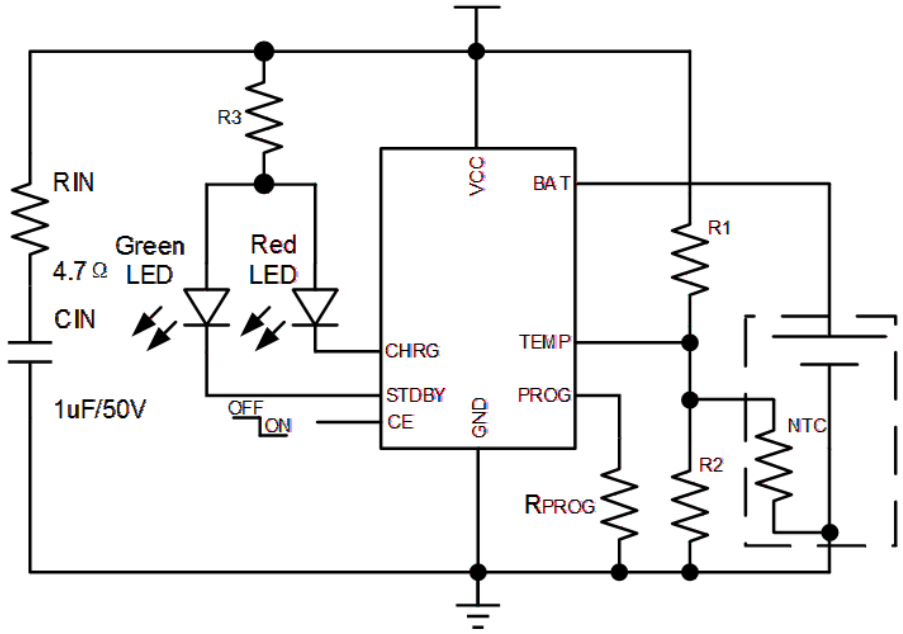
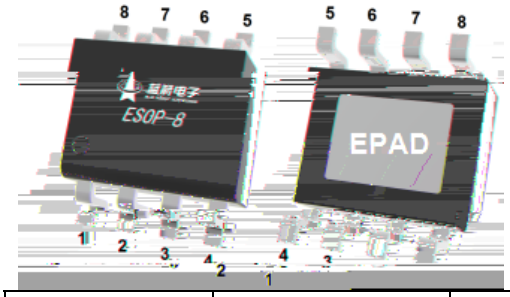


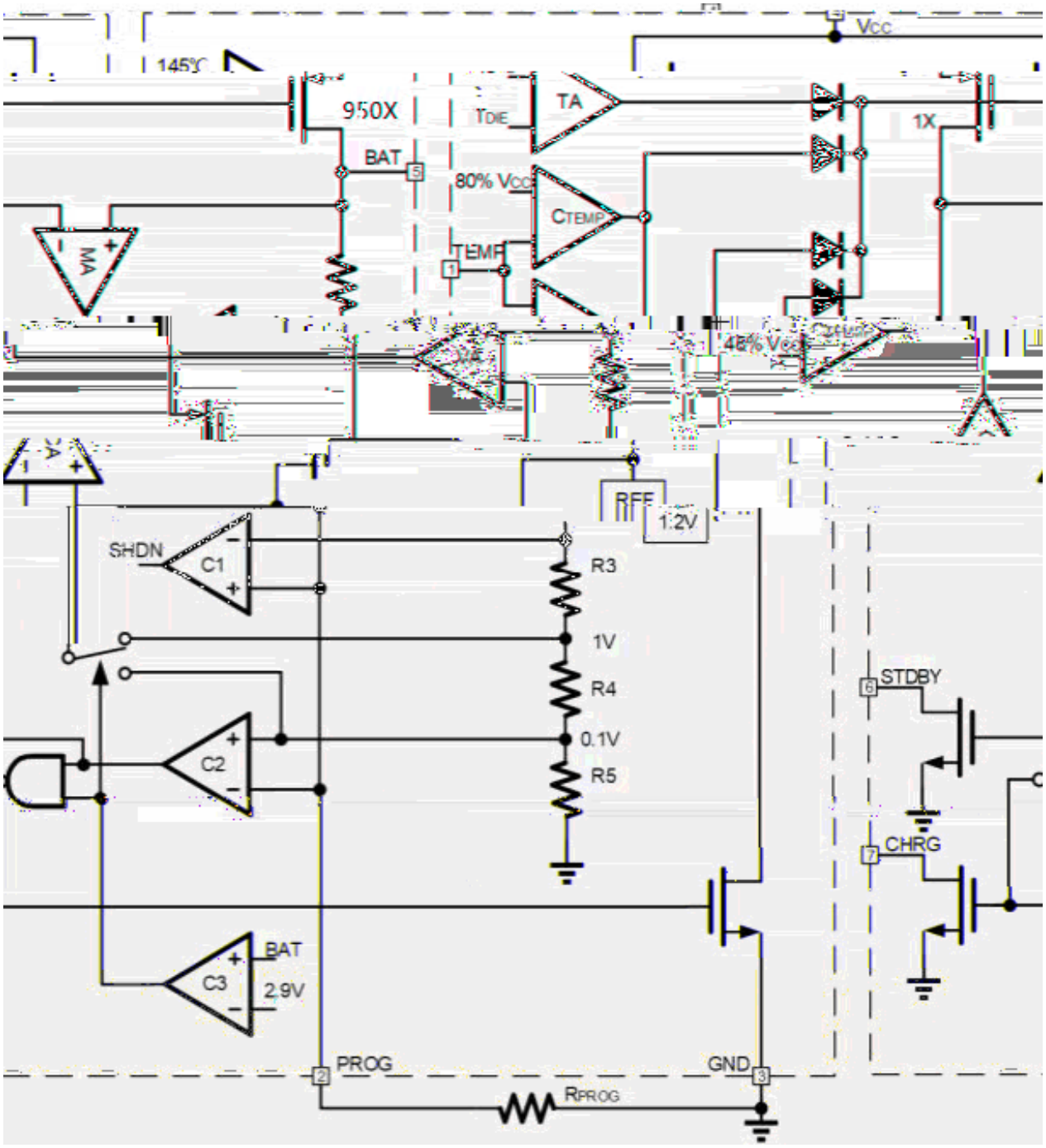


1	TEMP	
2		
3	GND	
4	VCC	
5	BAT	
6	STDBY	
7	CHRG	
8	CE	
EPAD	GND	

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	$V_{TEMP/CE}$	-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

Input Supply Voltage	V_{CC}		4.5	5.0	36.0	V
Input Power Supply Current	I_{CC}	Charging mode (R_{PROG}=1.0K)		260	360	μA
		Standby mode, charging terminated		180	300	μA
		Shutdown mode (R_{PROG} not connected, V_{CC}<V_{BAT},or V_{CC} V_{UV})		180	300	μA
		OVP mode(V_{CC}=30V)		180	300	μA
Regulated Output (Float) Voltage	V_{FLOAT}	0 T_A 85 , R_{PROG}=1.0k	4.158	4.2	4.242	V
BAT Pin Current	I_{BAT}	R_{PROG}=1.0k Current mode	855	950	1045	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}=1.0k	62	95	128	mA
Trickle Charge Threshold	V_{TRIKL}	R_{PROG}=1.0k V_{BAT} from Low to High	2.3	2.5	2.7	V
Trickle Charge Hysteresis	V_{TR_HYS}	R_{PROG}=1.0k	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

V_{CC} Under voltage Lockout Hysteresis	$V_{CC\_UV\_HYS}$	V_{CC} from High to Low	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}=1.0k	62	95	128	mA
R_{PROG} voltage at Constant Current Mode	V_{PROG}	R_{PROG}=1.0k, 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		mΩ
Soft start time	t_{ss}	I_{BAT} = 0 to I_{BAT} =950V/R_{PROG}		20		μs
Recharge Comparator Filtering Time	$t_{RECHARG}$	V_{BAT} from High to Low	0.8	1.8	4.0	ms
Terminate comparator filtering Time	t_{TERM}	I_{BAT} drop to I_{CHG}/10	0.8	1.8	4.0	ms
PROG pin pull-up current	I_{PROG}			1.0		μA
TEMP high-side protection voltage	V_{TEMP-H}			80	82	%V_{CC}
TEMP low-side protection voltage	V_{TEMP-L}		43	45		%V_{CC}


VCC
145°C
950X
TDIE
TA
BAT
5
80% VCC
CTEMP
TEMP
1
1X
MA
40% VCC
CTEMP
VA
RFF
1.2V
SHDN
C1
R3
1V
R4
0.1V
R5
STDBY
6
C2
CHRG
7
BAT
C3
2.9V
PROG
2
GND
3
RPROG

BRCL4079SE-4.2 /
1.0A PCB 1%
BRCL4079SE-4.2 P MOSFET
BRCL4079SE-4.2 USB

VCC UVLO PROG 1%
BAT V_{TRIKL}
BRCL4079SE-4.2 1/10

BAT V_{TRIKL} BAT
V_{FOLOAT} BRCL4079SE-4.2
1/10

PROG PROG
950

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

BAT PROG

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

0.5A

R_{PROG}

1/10

PROG PROG 100mV t_{TERM}

1.8ms BRCL4079SE-4.2

55 A C/10

BAT PROG DC 1/10

100mV 1.8ms t_{TERM}

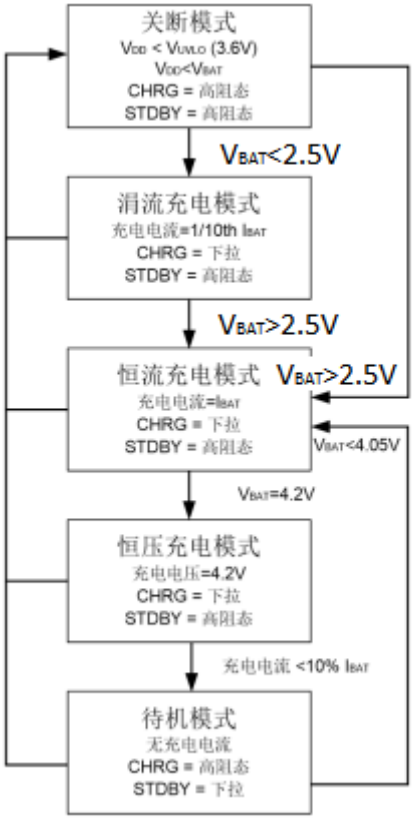
1/10 BRCL4079SE-4.2

BAT BAT

BRCL4079SE-4.2 BAT 4.05V

V_{RECHRG}

PROG



Rev.A Dec.-2025

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

VCC

UVLO UVLO VCC

100mV

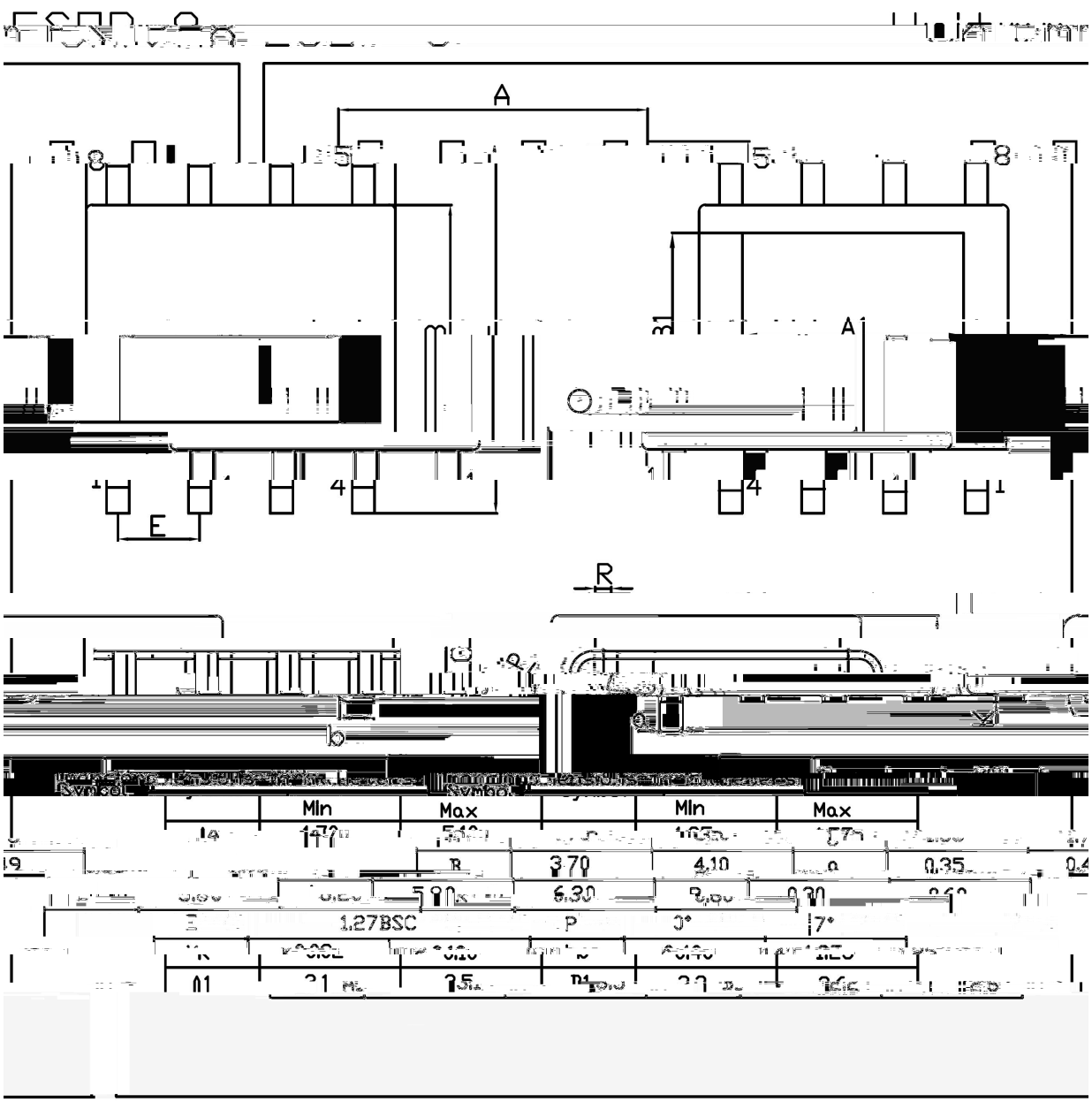
BRCL4079SE-4.2 1.8ms BAT
4.05V 80% 90%

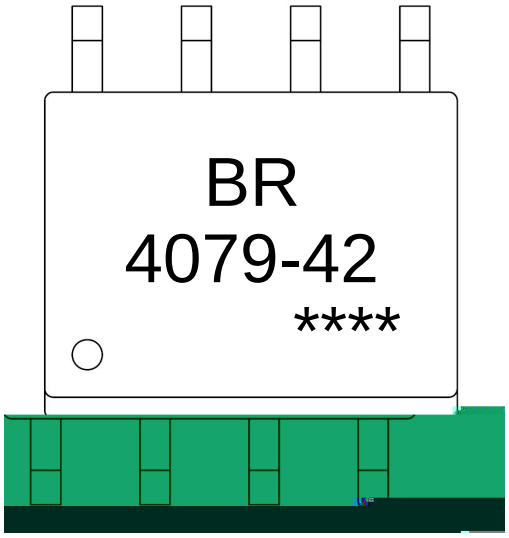
CHRG

ESR

1

PROG


A
E
R
Min
Max
Min
Max
1.27BSC


BR
4079-42
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Note:

1 150 180 60 90sec;

2 245 5 5 0.5sec;

3 2

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

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