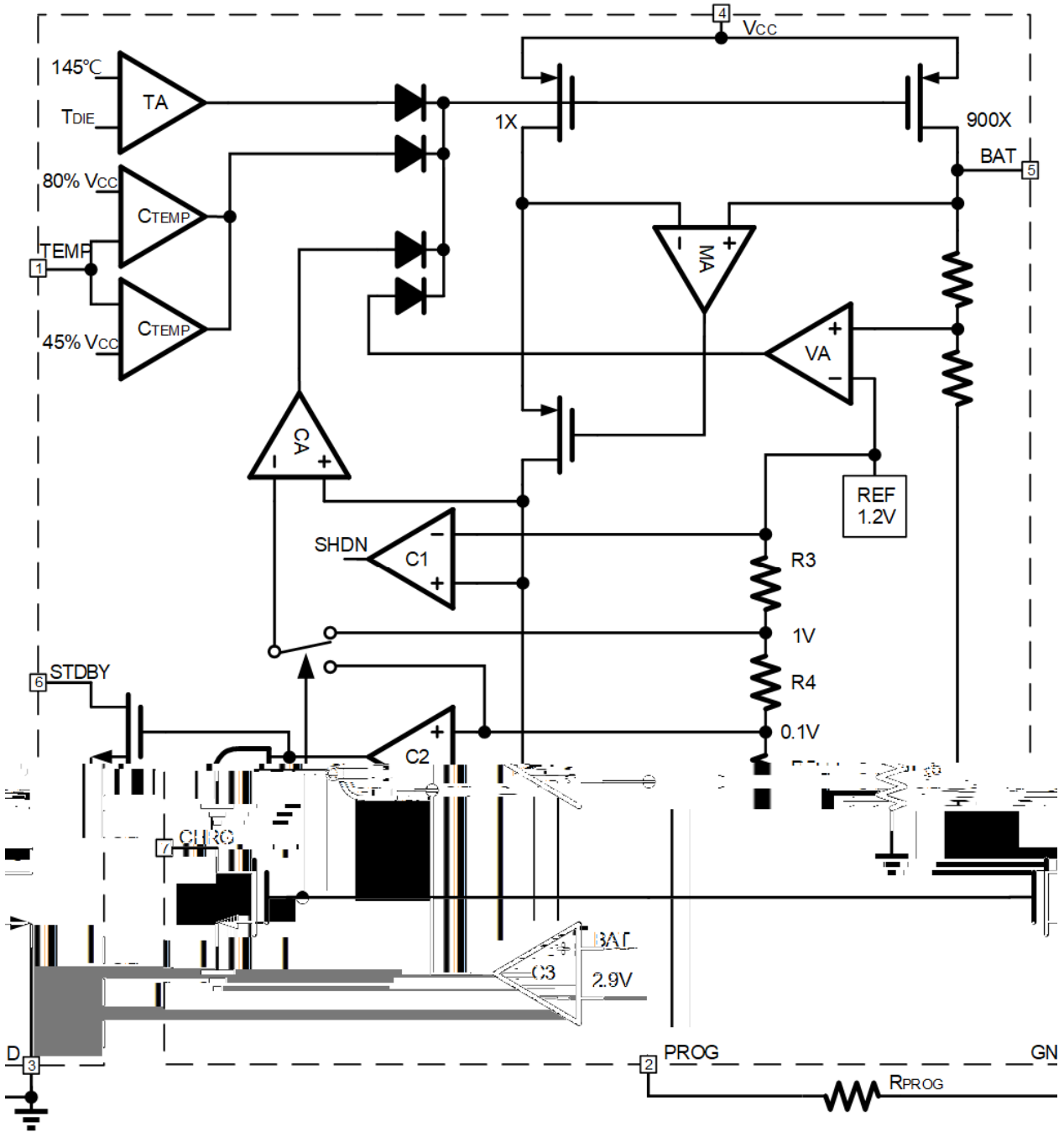


1	TEMP	
2		
3	GND	
4	VCC	
5	BAT	
6	STDBY	
7	CHRG	
8	CE	

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

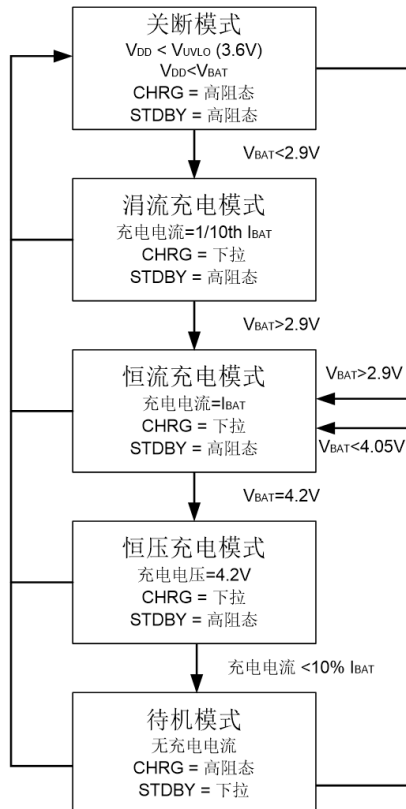
Input Supply Voltage	V_{CC}		4.5	5.0	36.0	V
Input Power Supply Current	I_{CC}	Charging mode ($R_{PROG}=1.02k$)		260	360	A
		Standby mode, charging terminated		180	300	A
		Shutdown mode (R_{PROG} not connected, $V_{CC}<V_{BAT}$, or V_{CC} V_{UV})		180	300	A
		OVP mode($V_{CC}=30V$)		180	300	A
Regulated 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
VCC 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}		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/RGAT				





1/10
 PROG 100mV tTERM
 1.8ms
 55 A C/10
 BAT
 100mV 1.8ms tTERM
 1/10 DC 1/10
 BRCL4058PZZ-4.2
 BRCL4058PZZ-4.2
 BAT
 BRCL4058PZZ-4.2 BAT 4.05V
 VRECHRG
 PROG





Rev.B May.-2025



$R1$ $R2$
 NTC RTL $TL \sim TH$ TL TH TH RTL RTH
 TL $TEMP$

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

TH $TEMP$

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

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

$$V_{TEMPL} = V_{LOW} \cdot k1 \times V_{cc}$$

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

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

PTC

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

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

RTH RTL V_{cc} $R1$ $R2$ RTH RTL
 $R1$ $R2$ $R1$



$UVLO$ V_{CC}
 $100mV$ $UVLO$ V_{CC}



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

CHRG



ESR

1

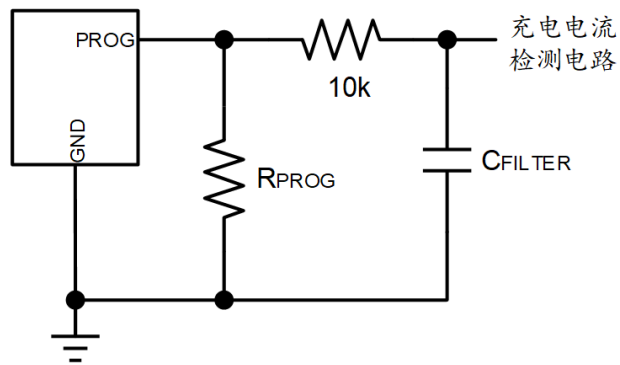
PROG RPROG 20k PROG

PROG CPROG RPROG 100kHz

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

BAT PROG PROG

RC 10k PROG



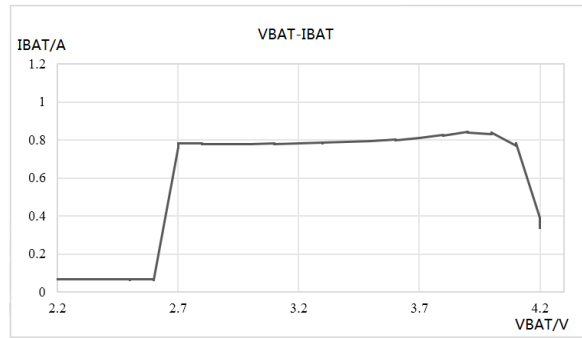
PCB

PD

$$T_J = P_D \quad J_A + T_A$$



IC	PD	$V_{IN}-V_{BAT}$	I_{CHG}	:
		$P_D = V_{IN}-V_{BAT} * I_{CHG}$		
	3.6V			
	4.0V		5%~10%	PD



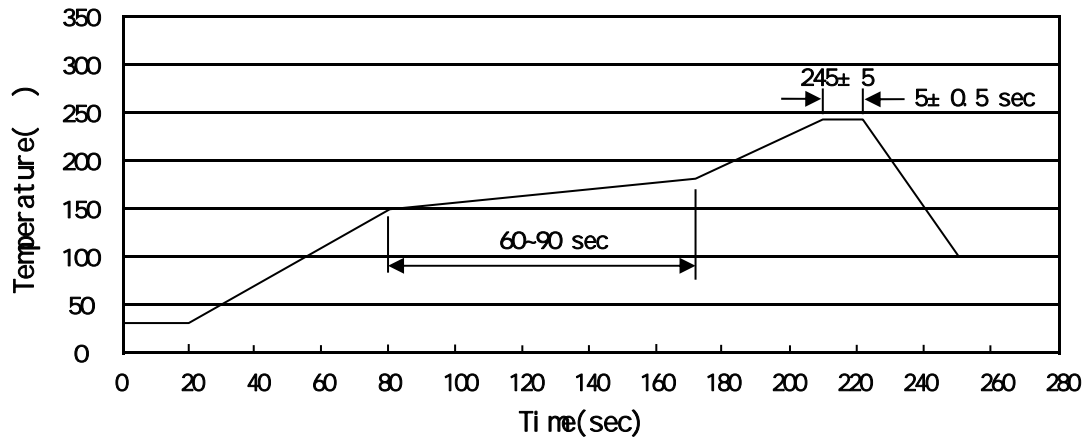
DFN2x2-8L-0.75

Unit:mm



4058P-42





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. |

260 ± 5

10 ± 1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
DFN2x2-8L	4,000	10	40,000	4	160,000	7 × 8	210×205×205	445×435×230

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