

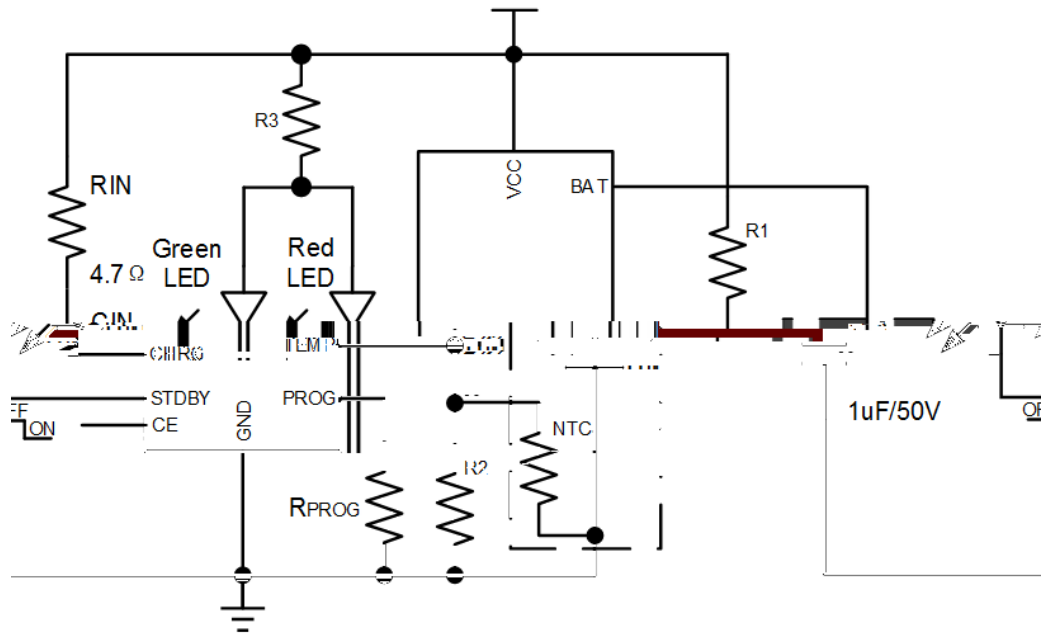
BRCL4058PZZ-4.2

BRCL4058PZZ-4.2	/				
BRCL4058PZZ-4.2			USB		
BRCL4058PZZ-4.2	PMOSFET				
	4.2V	PROG	1.0A		
	BRCL4058PZZ-4.2			2μA	
BRCL4058PZZ-4.2					
BRCL4058PZZ-4.2	DFN	6		PCB	
BRCL4058PZZ-4.2	-40±C to +85±C				

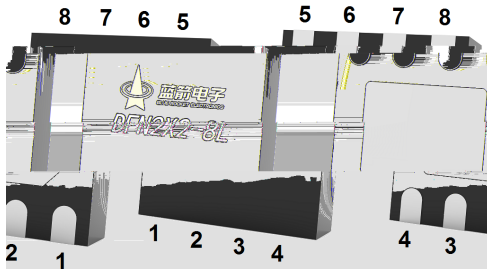
- ◆ 36V 6.1V
- ◆ 1% 4.2V
- ◆
- ◆ BAT-VDD
- ◆ <2μA
- ◆ 55μA
- ◆ 0V
- ◆ 1.0A
- ◆ / /
- ◆
- ◆
- ◆
- ◆
- ◆
- ◆
- ◆ RoHS

- ◆ SGDs P S6
- ◆ XVE
- ◆ W Z V
- ◆
- ◆

Rev.B May.-2025



4	YFF	YFF	FLQ	71:Ω	YFF
5	FH	PFX	FH	JQG EUF0738;S]]0715	FH YFF

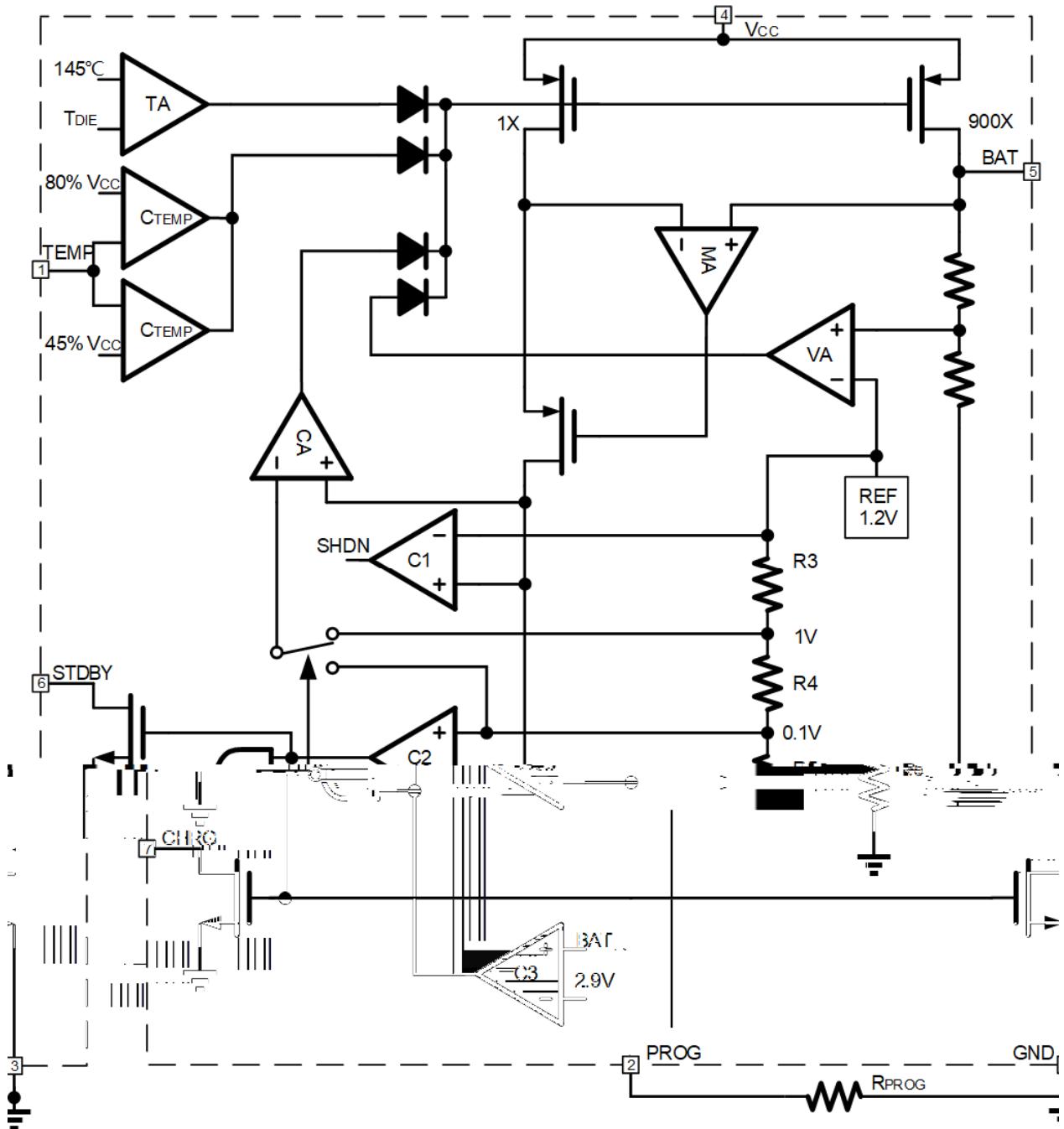


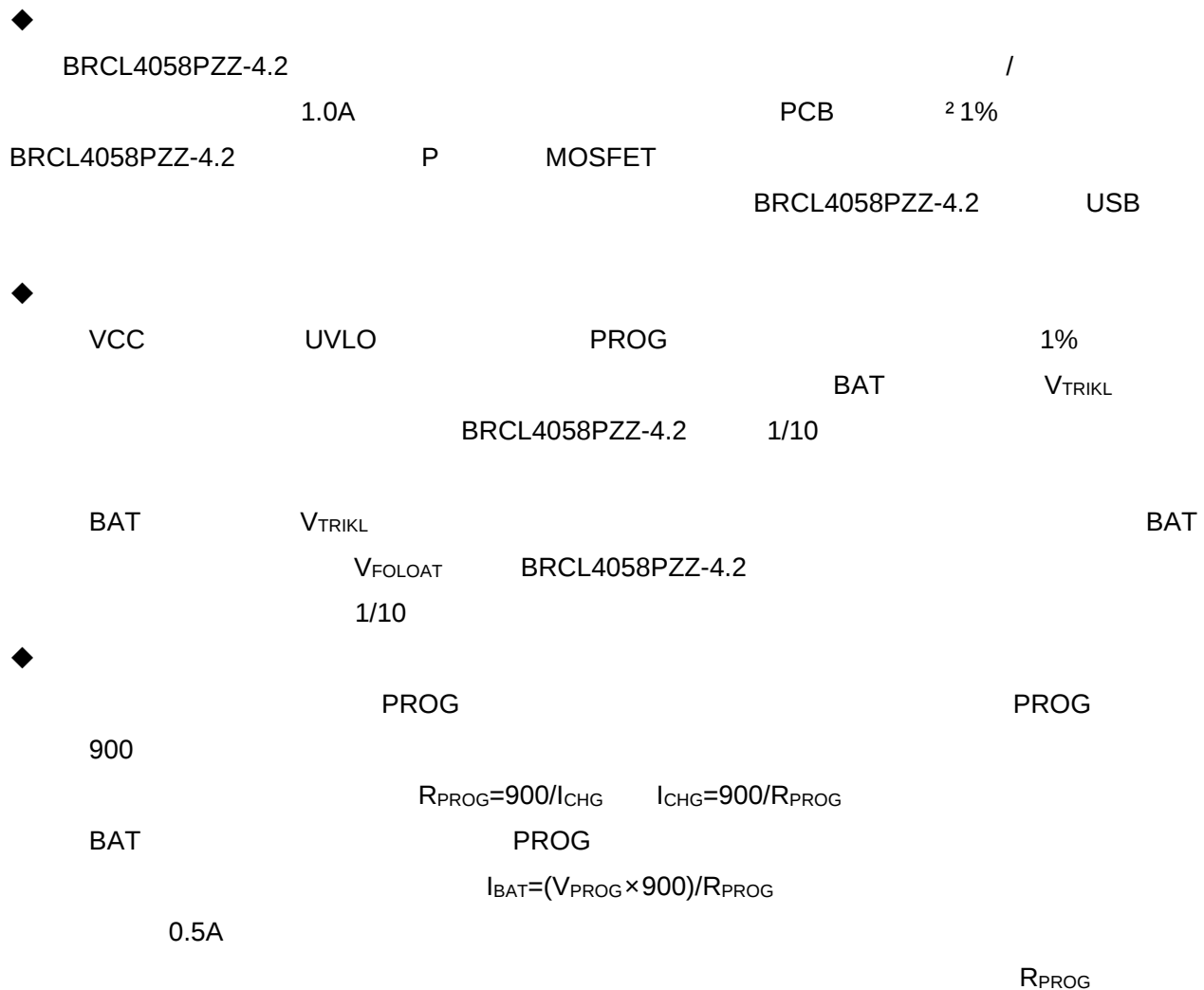
1	TEMP	
2	SUR J	JQG
3	GND	
4	VCC	
5	BAT	
6	STDBY	
7	CHRG	
8	CE	

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	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}	$0 \leq T_A \leq 85$, $R_{PROG}=1.02k$	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	μA
		Shutdown mode (R_{PROG} not connected)		± 1	± 2	μA
		Sleep mode, $V_{CC}=0V$		-1	-2	μA
Trickle Charge Current	I_{TRIKL}	$V_{BAT} \geq V_{TRIKL}$ $R_{PROG}=1.02k$	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

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		mΩ
Soft start time	t _{ss}	I _{BAT} = 0 to I _{BAT} = 900V/R				

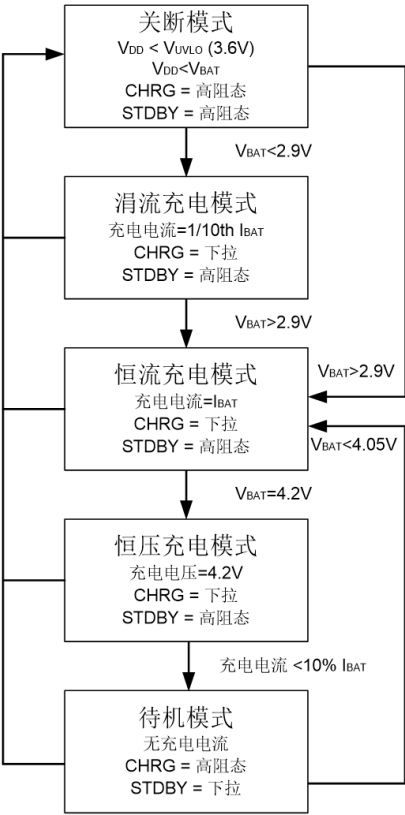




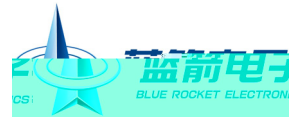
$R_{PROG}(K\Omega)$	$I_{CHG}(mA)$
6133	638
5165	733
5138	783
41<4	7;8
41;3	853
418;	8<3
417:	973
416:	9<3
415:	:88
4154	;33
4143	<43
4135	4333

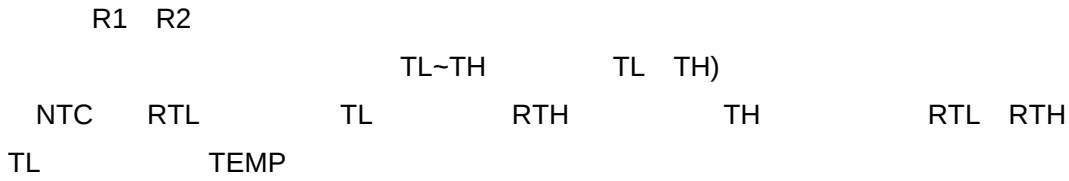


1/10
100mV
tTERM
BRCL4058PZZ-4.2
1.8ms
55μA
C/10
BAT
100mV
1.8ms
tTERM
1/10
BRCL4058PZZ-4.2
BAT
4.05V
VRECHRG
PROG



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$$V_{TEMP_L} = \frac{R_2 || R_{TL}}{R_1 + R_2 || R_{TL}} V_{IN}$$

TH

TEMP

$$V_{TEMP_H} = \frac{R_2 || R_{TH}}{R_1 + R_2 || R_{TH}} V_{IN}$$

$$V_{TEMP_L} = V_{HIGH} = k_2 \times V_{CC} (k_2 = 0.8)$$

$$V_{TEMP_H} = k_1 \times V_{CC} (k_1 = 0.45) \quad V_{TEMP_L} = V_{LO}$$

$$R_1 = \frac{R_{TL} \times R_{TH} (k_2 - k_1)}{(R_{TL} - R_{TH}) k_2 \times k_1}$$

$$R_1 = \frac{R_{TL} \times R_{TH} (k_2 - k_1)}{(R_{TH} - R_{TL}) k_2 \times k_1}$$

PTC

$$R_1 = \frac{R_{TL} \times R_{TH} (k_2 - k_1)}{(R_{TH} - R_{TL}) k_2 \times k_1}$$

$$R_2 = \frac{R_{TL} \times R_{TH} (k_2 - k_1)}{R_{TH} (k_1 - k_2 \times k_1) - R_{TL} (k_2 - k_2 \times k_1)}$$





◆

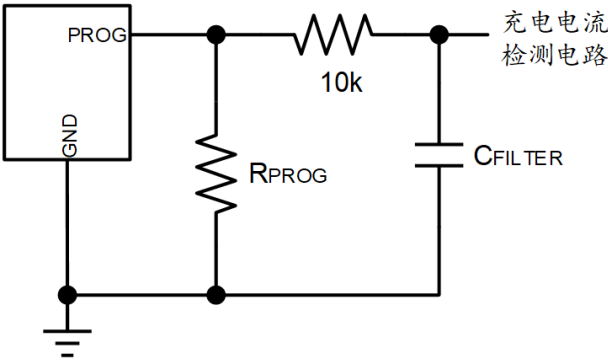
BRCL4058PZZ-4.2
4.05V
1.8ms
80% 90%
BAT
CHRG

◆

1Ω
10k
ESR
PROG
PROG
RPROG
20kΩ
100kHz
PROG
PROG
CPROG
RPROG

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

BAT
RC
10k
PROG
PROG

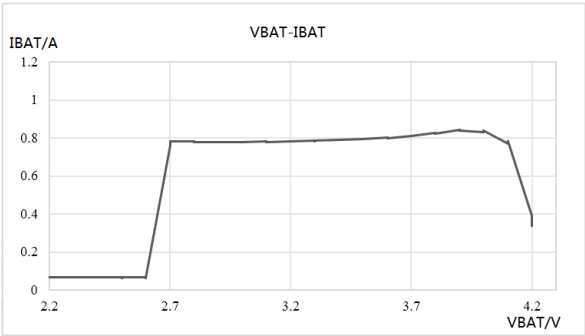


◆

PCB
PD
 $T_J = P_D \times \theta_{JA} + T_A$



IC PD VIN-VBAT ICHG :
PD= VIN-VBAT *ICHG
3.6V
4.0V 5%~10% PD



DFN2×2-8L-0.75

Unit:mm



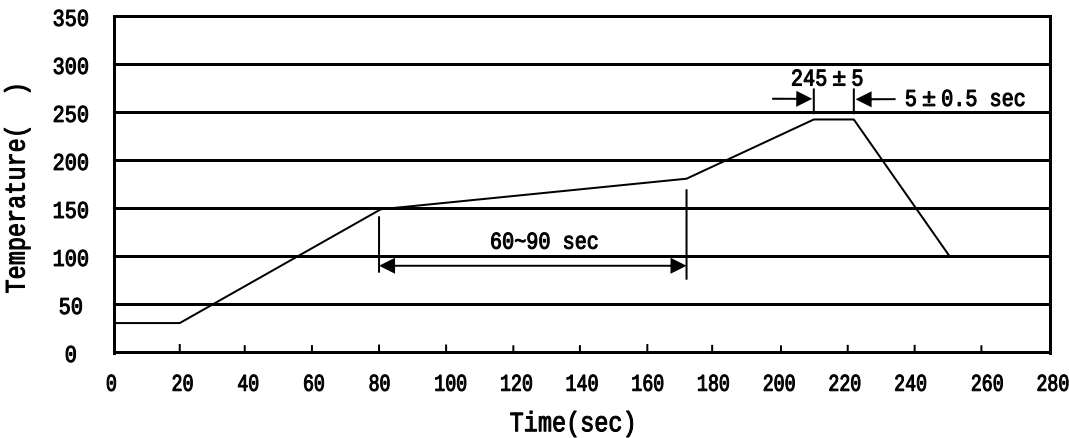


738;S
75

715Y



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.

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

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