E

BRCL4054BME / SOT
BRCL4054BME BRCL4054BME USB
PMOSFET

4.2V
1/10 BRCL4054BME BRCL4054BME

The BRCL4054BME is a complete constant-current/constant voltage linear charger for single cell lithium-ion batteries. Its Thin SOT package and low external component =

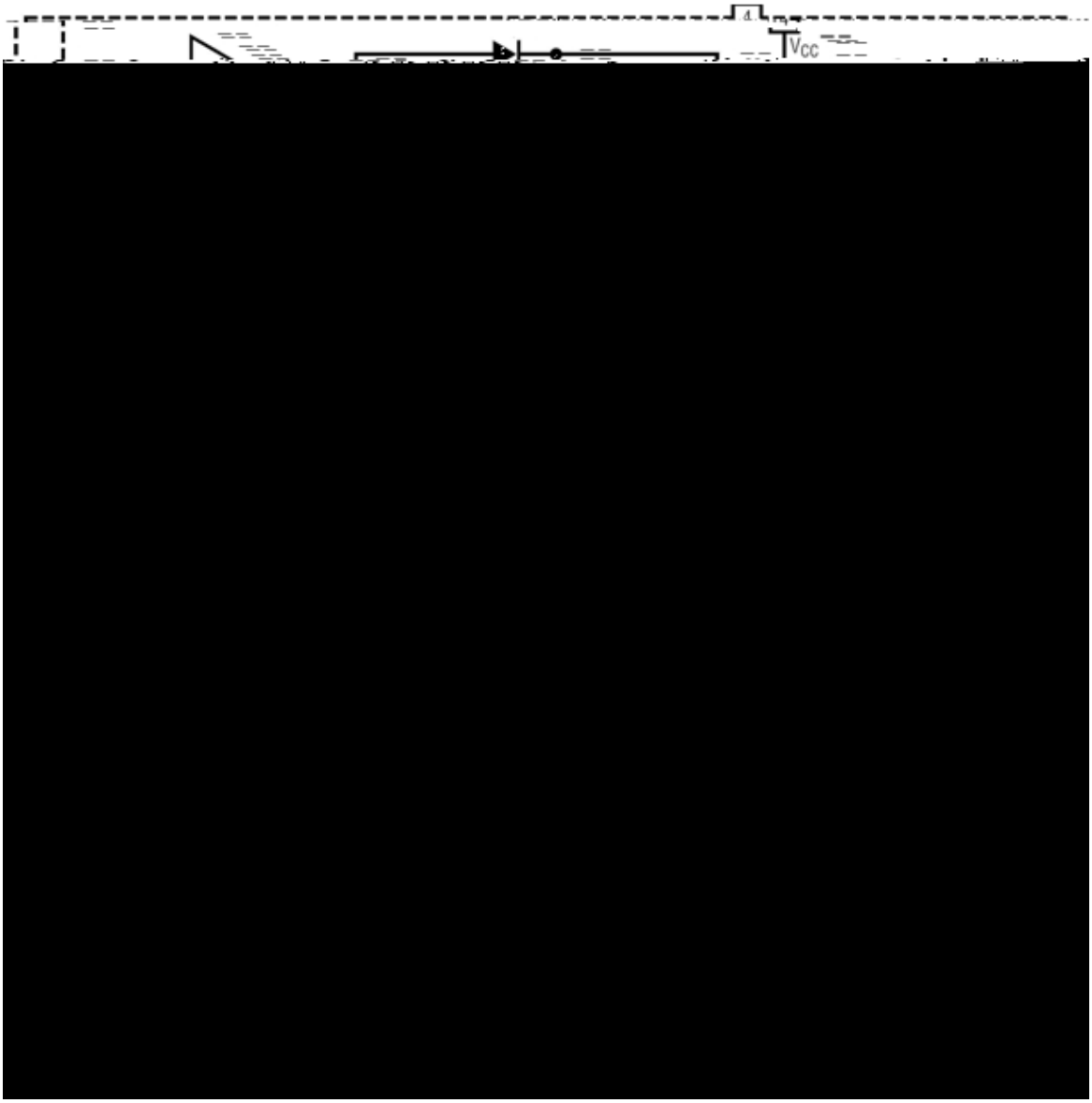
d

BRCL4054BME

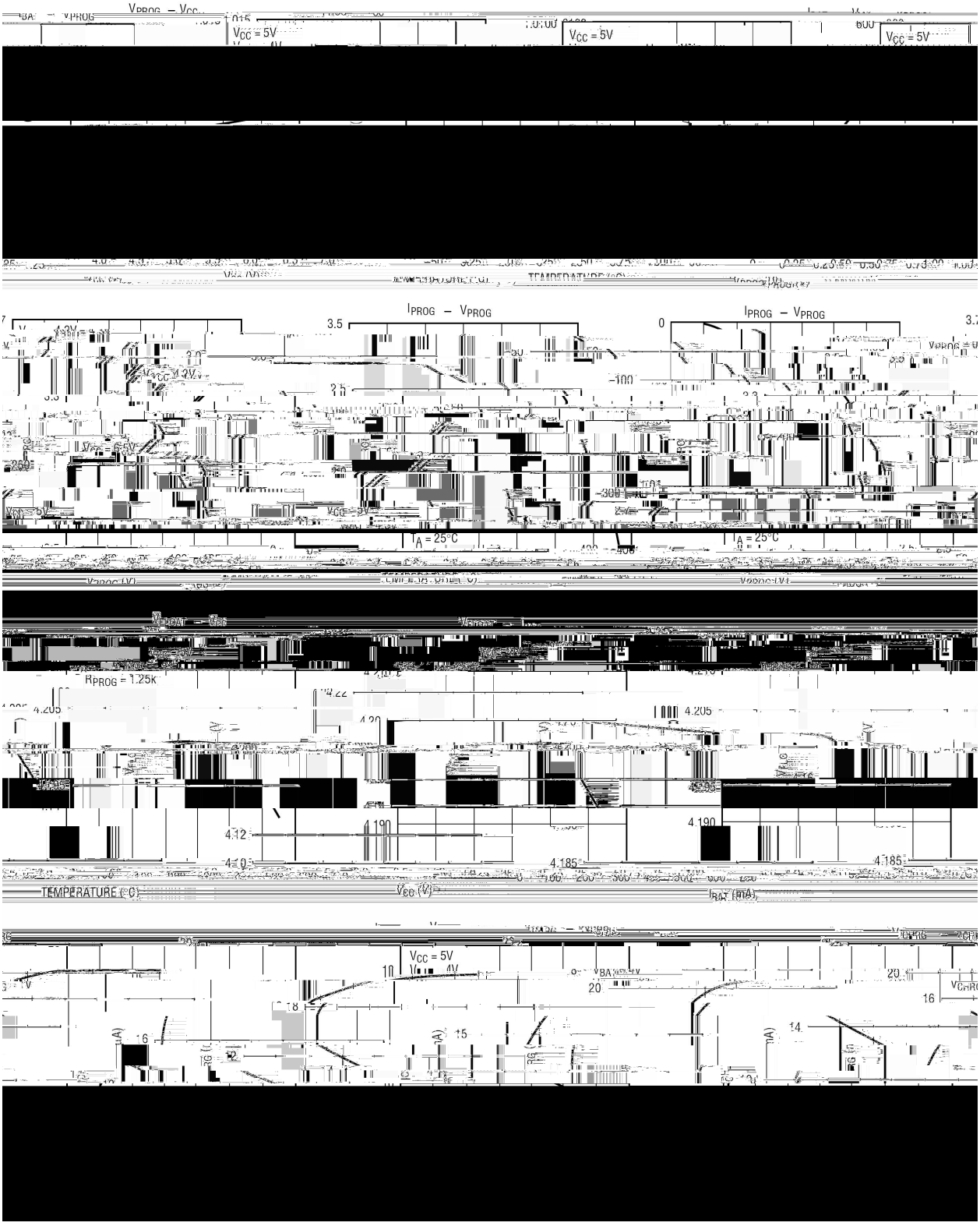
Rev.H

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
V_{CC}						

D E F G / Functional Block Diagram



? @ H I G / Electrical Characteristic Curve



 # ? @ H I G

J C , - / Functional Description

V_{cc} ! " # $ UVLO% & ! ' ( ) * + PROG , - . / 0 1 2 3 4 5 6 7 1% 8 9 : ! ; < = 3 4 ! > , ? ! < @ A B C 0 D E 3 4 ? ! F G H I J K L BAT ! ' M N 2.9V E O ? ! < P Q R S ? ! T U J + V T U W E BRCL4054BME X Y Z 1/10 8 9 : ? ! ! S E ([\ ! S ! " X # $ 3 4] ^ 8 ! ' E _ ` a b c ! S ? ! J

A charge cycle begins when the voltage at the V_{CC} pin rises above the UVLO threshold level and a 1% program resistor is connected from the PROG pin to ground or when a battery is connected to the charger output. If the BAT pin is less than 2.9V, the charger enters trickle charge mode. In this mode, the BRCL4054BME supplies approximately 1/10 the programmed charge current to bring the battery voltage up to a safe level for full current charging.

BAT ! " # $ 2.9V ( ) D E ? ! < P Q d : ! S T U E e D f ! > X Y d : 8 ? ! ! S J BAT ! " g h i j k ? ! " l 4.2V m D E BRCL4054BME P Q d : ! " T U E * ? ! ! S H I n o J ? ! ! S p $ 9 : q 8 1/10 E ? ! F G r s J

When the BAT pin voltage rises above 2.9V, the charger enters constant-current mode, where the programmed charge current is supplied to the battery. When the BAT pin approaches the final float voltage (4.2V), the BRCL4054BME enters constant-voltage mode and the charge current begins to decrease. When the charge current drops to 1/10 of the programmed value, the charge cycle ends.

+ t u T U W E BRCL4054BME v BAT ! " P w 0 x y z J K L V ! " p h 4.05V 8 { ? ! ! % & (V_{RECHRG}) (| E O } 3 4 ? ! F G H I ~ { f ! > Y ¡ ! S J + t u T U W P w ? ! F G 8 ¢ £ { ¤ £ D E ¥ ¦ § ¨ © ª { « ¬ @ Q ! " E = - ¥ ¦ ® ¯ ? ! < ~ ° ± PROG P w { ¤ £ J

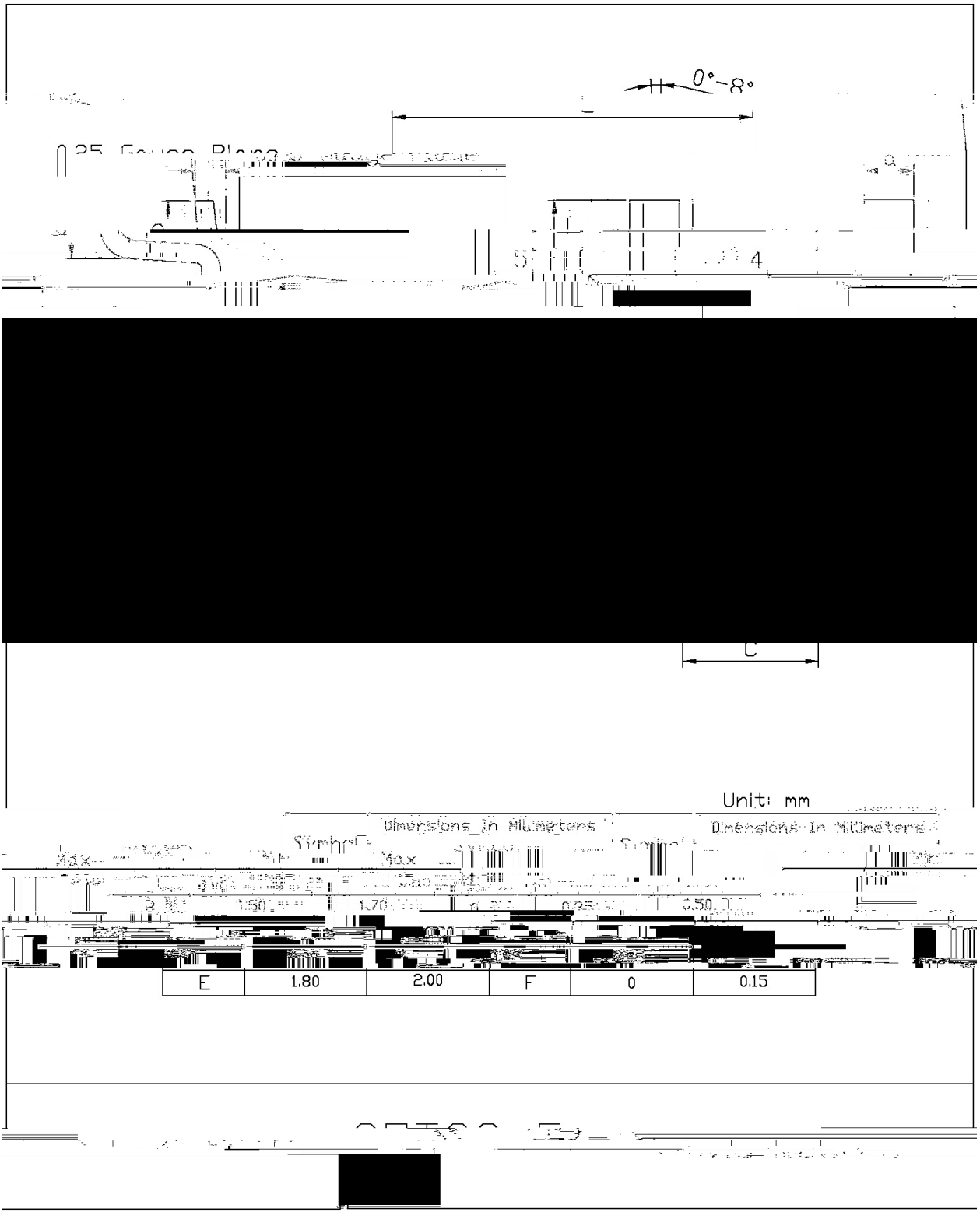
The BRCL4054BME constantly monitors the BAT pin voltage in standby mode. If this voltage drops below the 4.05V recharge threshold (V_{RECHRG}), another charge cycle begins and current is once again supplied to the battery. To manually restart a charge cycle when in standby mode, the input voltage must be removed and reapplied, or the charger must be shut down and restarted using the PROG pin.

? ! ! S ² ³ ± 3 4 0 1 + PROG , - . / 8 ! ; < ´ 9 : 8 J ! S ? ! ! S ² PROG @ A ! S 8 1000 µ J 9 : ! ; < ¶ ? ! ! S ³ ± | · ¸ U ´ ¹ º »

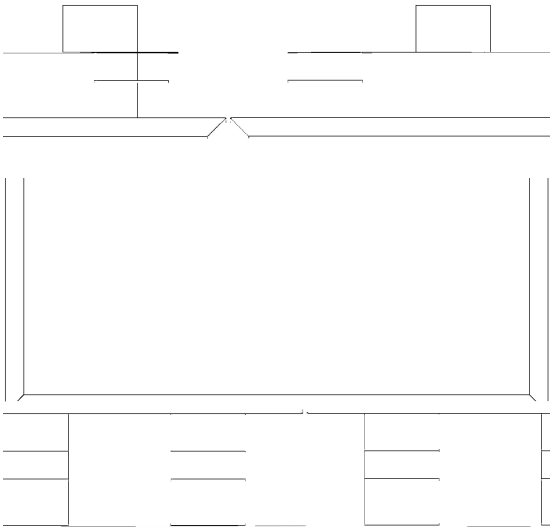
The charging current is set by a resistor connected between prog pin and ground. The charging current is 1000 times the output current of prog pin. The setting resistor and charging current are calculated using the following formula »

V_{PROG}

K L M N G / Package Dimensions



9 : O P / Marking Instructions



Q R S T U H I G(V W) / 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.

X S Y Z [\ ] ^ / Resistance to Soldering Heat Test Conditions

260±5	10±1 sec.	Temp.:260±5	Time:10±1 sec

_ ` a b / Packaging SPEC.

/ REEL

Package Type !	Units " # $	Dimension " % & (unit ' mm^3)