4õ] K8+k"–{+k1×*<8å{}

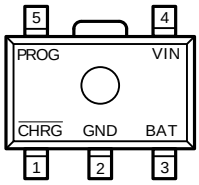
KF5050 _ 0 Z ¼ ´,´ …(wK2/ë €+e"• ,#q / , »4ï '+e $À1Ñ*68ß(w Ä ³;´,´ j (¼ ?,´ F 5>õ ¯ ³ ï ¾ ï j Ä+X Ä $ l Ç 0 ,´ _ ÈKF5050 CL AîAÑF2+X ¾USB ,´ Ë+e?ô l Ä Ç,ú ¾ µG ,´ MOSFET 5 ´ È X Ä+X : =M0?± FG +eLk ¼ Lk Ž ¼ ±1Ñ Ä XQ 7-GÿF >| ¼Q F $$Y Ö & È' ýO¸ × f u+e+e#q L} ~8ß(w$Y Ö Ä

u+e+e »>ÛL€ Ê X4.2V È u+e+e#qFJE÷ FG +eLkB38² Ä XEî `- 7 u+e+e » > È ƒ u+e+e#qL} ~ `Aî Ê l,´ 1/10 & ÈKF5050 a J8 Ø5 • u+eE÷0; ÄƒEÃ •1 Ä d F USB Ë+e$À Å ¹ > È KF5050 8 ØF • ~+e#q(æ 1 È+e"•%? +e#q 6L} ` 2µA ; Ä KF5050 F >ÛAî5ž ¾ Œ!' Œ(æ 1 È ¯+e$À Ë+e+e#qL} ` 25µA Ä

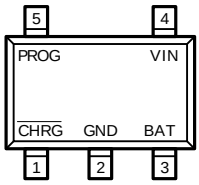
KF5050 G÷+X) (©,´ µG C Y5 ´.ž ¶+e"• Õ ý &8ß (w8 ØF • Ô(æ 1 Èž IC =>Û +0¯ ,8$+e"•8 n+e EC§ » u Ä < &.ž KF5050 ,´ ESD 7- ËEî ` 7KV(HBM) Ä

¦ ‰(© W 5 Ö u+e+e#q- #{ ÈEÃ • ~+e »L K1 È8 Ø Gý à u+e ¼ u+e "% ú 0 û u+e,´ 7 Ä

$ % & '



SOT-89-5L



SOT-23-5L

5F0; ¯ u+e+e#q Eî 500mA.

=M0?±MOSFET È P O+eLk ¼Lk Ž ¼ ±1Ñ ?,´ j (Î)à)K2/ë €+e"•,´ ¼ ˜4ï ' u+e1Ñ*6 ,+e#q/ ,+e »F >| ¼' ÖB38² ¯ Ç+e"•1Ñ*6 x Ë 0 Q È"Ñ 9' ÖE÷Q ,´ ¡L™

þ USB Õ 1Ñ*6 …(wK2/ë €+e"• N´Aî u+e+e » j 4.2V r1%

u+e+e#qEÃ *- ×

u+e(æ 1 7/j 7

1/10 u+e+e#q4ø!'

Œ!' Œ & Ë 25µA +e#q 2.9V #Ã#q u+eL8 l+e » EŸ _ ØL€ f#š#¼+e#q +e"• ý Õ Ô ESD(HBM)>7KV

7>û

SOT-23-5L

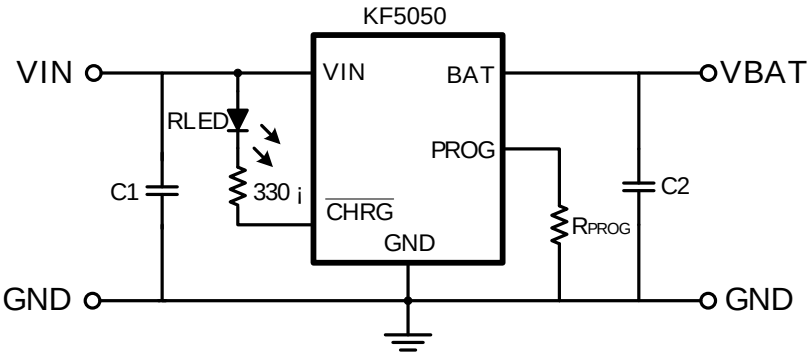
SOT-89-5L

+^FJ

{ j È PDA ÈMP3

; (‰ Ä+X

, - .



ÖC1=4.7uF ÈC2=10uF ÈIBAT = (VPROG/RPROG)*1000

K7P <Gƒ

E7J '		1V '	E7JB$ >
SOT-89-5L	SOT-23-5L		
1	1	CHRG	%? ± 0D u+e(æ 1EÃ *
2	2	GND	Õ `1
3	3	BAT	u+e+e#qEÃ *1
4	4	VIN	EÃ •1
5	5	PROG	u+e+e#q5F0;

K7P Õ73

CHRG Ä E7J 1 ÅÖ%? ± 0D u+e(æ 1EÃ * Ä ƒ u+e & È CHRG 1 >Û 0 Z µ5ž,´ N "ïFƒ MOSFET 5ž ¾ ~+e } Ä ƒ u+e ¼ @ & È CHRG x)àQ Lk 1 Ä ƒ KF5050 ð#{ ` ~+eK1 Ê ‘ & & È CHRG x)àQ Lk 1 Ä ƒ X BAT E7J ¼ ` {L$ Õ 0 1µF ,´+e é È a ¼ @+e"• _ V Õ -,´ 7/j È ƒ"Ñ 9+e"• & È LED &Ÿ J FOL &ñ Ä

GND Ä E7J 2Å Õ `1

BAT Ä E7J 3Å u+e+e#qEÃ *1 Ä5 +e"• Ë u+e+e#q ¦ × f#ž Ø+e » 04øEî ` 4.2V Ä 0 Z µG 2î ö+eLk ºF Z E7J < Œ & 8 Ø Ý+e,´#ž Ø+e » 6 0 Ä +e"• Õ ý & ĖµG Ô+eD Ô VBAT ,´ ESD ¼ ±1Ñ =>Û' • È< & GND > BAT {L$ ’ @ W4Ö 0.7mA +eD Ä

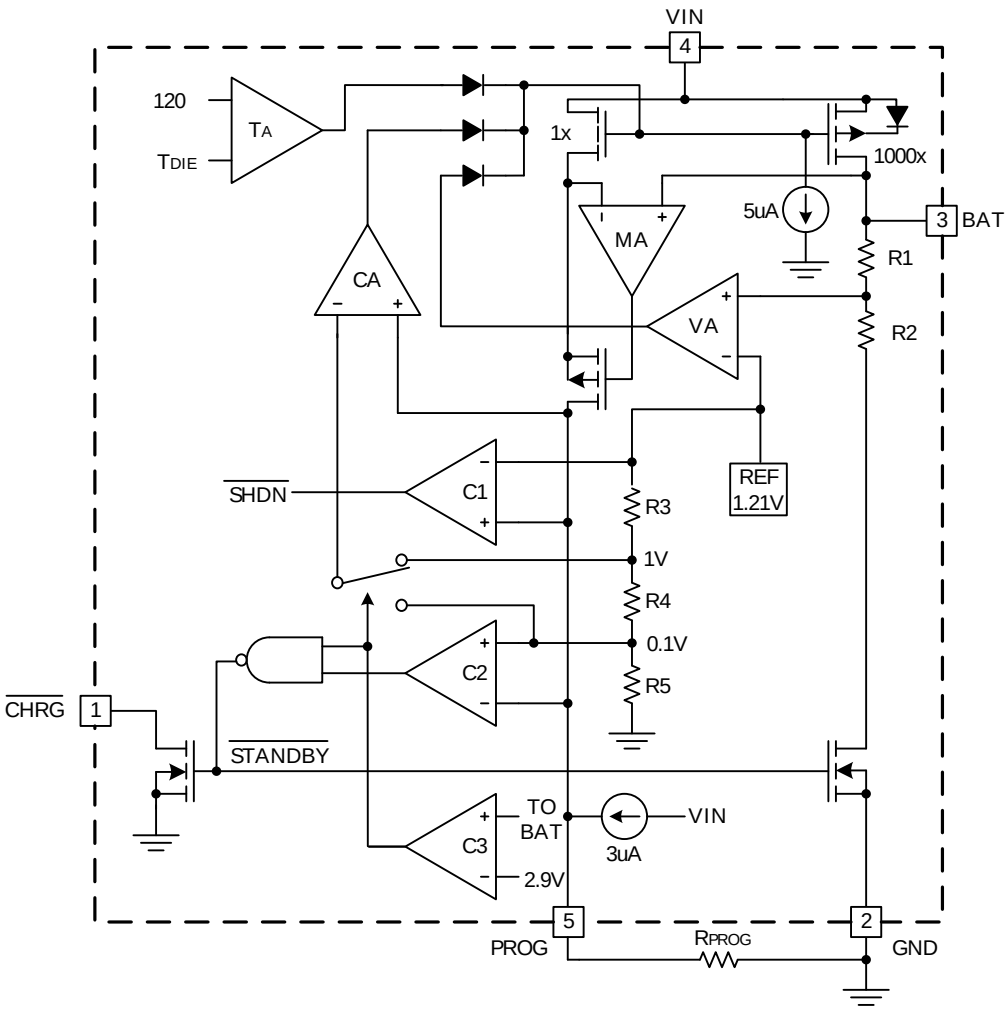
VIN Ä E7J 4Å Ë!“+e »EÃ • Ä j u+e ˜ Ë+e Ä VIN j 4.25V ` 6.5V ¦ D õN« 98# A 1µF ,´ ñD +e é Ä ² Ì BAT E7J1 +e »,´ VIN L} ` 30 mV µ & È KF5050 F • Œ (æ 1 È ¦¯ BAT +e#qL} ` 2µA ; Ä

5 / 6]NÓ Đ r

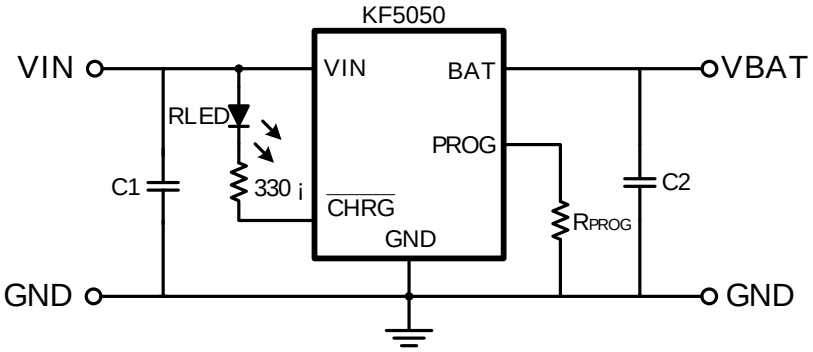
ò	7 '	0 WNÍ Ê I		... }
EÃ •+e »	Vin	V_{SS}-0.3	V_{SS}+7	V
PROG 1 +e »	Vprog	V_{SS}-0.3	Vin+0.3	
BAT 1 +e »	Vbat	Vss-0.3	7	
CHAG 1 +e »	Vchrg	V_{SS}-0.3	V_{SS}+10	
éAè Ï6G	P_D	SOT-23-5L	250	mW
		SOT-89-5L	500	
BAT 1 +e#q	Ibat	500		mA
PROG 1 +e#q	Iprog	800		uA
ê ƒ Q ? ESD 7- Ë	V_{ESD}	7000		V
Œ F $$Y Ö	Topa	-40	+85	℃
ˆ Ø$Y Ö	Tstr	-65	+125	

? Ö 5) 0 WNÍ Ê I _ 7 X + … ‘ & ;G- =7-CµE÷,´NÍ Ê I Ä 7 0CµE÷!”NÍ Ê I È 9 7-FP @ × ñ Ó F1y(™*6 W • T Ä

Õ73 | 4


VIN
4
120
TA
TDIE
1x
1000x
5uA
3
BAT
MA
CA
R1
VA
R2
REF
1.21V
SHDN
C1
R3
1V
R4
0.1V
C2
R5
CHRG
1
STANDBY
TO
BAT
C3
3uA
VIN
2.9V
5
2
PROG
RPROG
GND

Ê+^ ¥



z **Aî Ê u+e+e#q**

X ,#q Q ? ÈAÑ1Ç u+e+e#q,´ œ ? j Ö ICH = 1000 / RPROG Ä ¦] È ICH >˜/j u+e+e#q È … } j ¹) ÈRPROG >˜/j PROG 1Ñ 7J ` `,´+eLk È … } j!W ö Ä » ² È ² ÌM0?± 500 " ¹,´ u+e+e#q È 9 ;M',´ œ ?AÑ1Ç Ö RISET = 1000/0.5 = 2K »

j ¶ Añ8Ÿ -,´0c Ê W ¼$Y Ö(© W È RISET *AÞ ¯+X2î Ö j 1%,´H Ž7Ì+eLk Ä FJE÷#{GÿSET 1Ñ7J,´+e » ð#{ u+e+e #q Ä u+e+e#q +X ;M',´ œ ?AÑ1Ç Ö ICH = (VPROG / RPROG) × 1000

z **EÃ •EÃ *+e é**

*AÞ+e é l Ö C1=4.7uF È C2=10uF È < & PCB 3 ¯?±"rF F Z +e é?± mGÿM•F 8ß(w ×

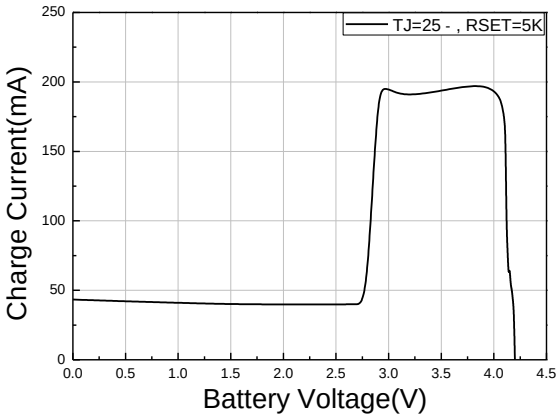
+k œ(¯] ø ¦

(TA=25 unless otherwise noted)

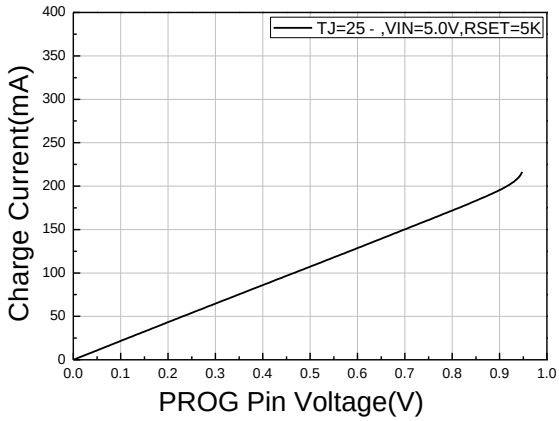
ò	7 '	' &	0 ~	¨ »	0Q	UNIT
EÃ •+e »	Vin	-	4.25	-	6.5	V
EÃ •+e#q	Iin	Charge mode,Rprog=10K	-	300	2000	µA
		Standby mode	-	200	500	µA
		Shutdown mode(Rprog not connected,Vin<Vbat or Vin<Vuv)	-	25	50	µA
EÃ * × f+e »	Vfloat	0 <TA<85 , IBAT = 40mA	4.16	4.2	4.25	V
BAT1 +e#q	Ibat	Rprog=10k, Current mode	93	100	107	mA
		Rprog=2k, Current mode	465	500	535	mA
		Standby mode, Vbat=4.2V	0	-2.5	-6	µA
		Shutdown mode	-	1	2	µA
		Battery reverse mode, VBAT=-4V	-	0.7	-	mA
		Sleep mode, Vin=0V	-	1	2	µA
#Ã#q u+e+e#q	Itrikl	Vbat<Vtrikl, Rprog=5k	30	40	50	mA
#Ã#q u+e ±L€+e »	Vtrikl	Rprog=10K ÈVbat Rising	2.8	2.9	3.0	V
#Ã#q u+eF% +e »	Vtrhys	Rporg=10k	60	80	110	mV
+e$À ~+eL K1L8 l+e »	Vuv	From Vin low to high	3.7	3.8	3.93	V
+e$À ~+eL8 l+e »F % +e »	Vuvhys	-	150	200	300	mV
{ Ø £L L8 l+e »	Vmsd	PROG pin rising	1.15	1.21	1.30	V
		PROG pin falling	0.9	1.0	1.1	V
Vin-Vbat Œ!' ŒL8 l+e »	Vasd	Vin from low to high	70	100	140	mV
		Vin from high to low	5	30	50	mV
C/10 4ø1 L8 l+e#q	Iterm	Rprog=10k	0.085	0.10	0.115	mA/mA
		Rprog=2k	0.085	0.10	0.115	mA/mA
PROG1 +e »	Vprog	Rprog=10k, Current mode	0.93	1.0	1.07	V
CHRG1 a ; ù+e#q	Ichrg	Vchrg=5V	8	20	35	µA
CHRG1 0 ?EÃ *+e »	Vchrg	Ichrg=5mA	-	0.35	0.6	V
+e"• ½ u+eF % +e »	û Vrecg	VFLOAT - VRECHRG	-	100	200	mV

(¯](4õ

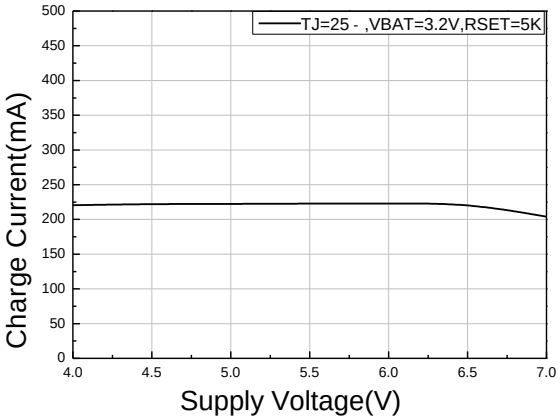
1. u+e+e#q VS BAT 1 +e »



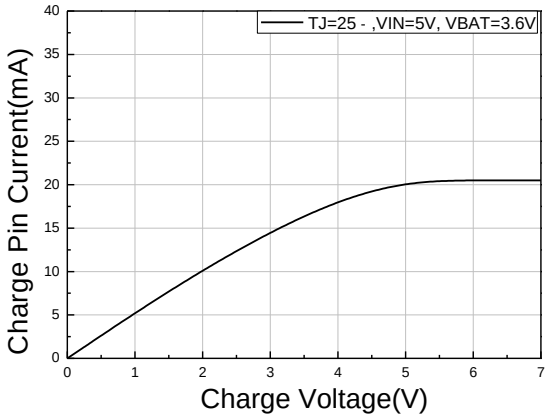
2. u+e+e#qVS PROG1 +e »



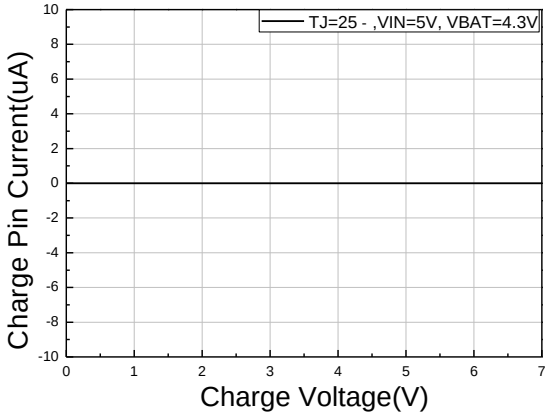
3. u+e+e#qVS EÃ •+e »



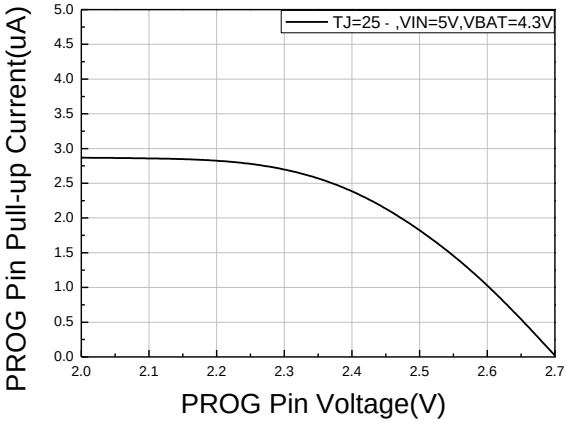
4. CHRG1 +e#q VS CHRG1 +e » Ä u+e & Å



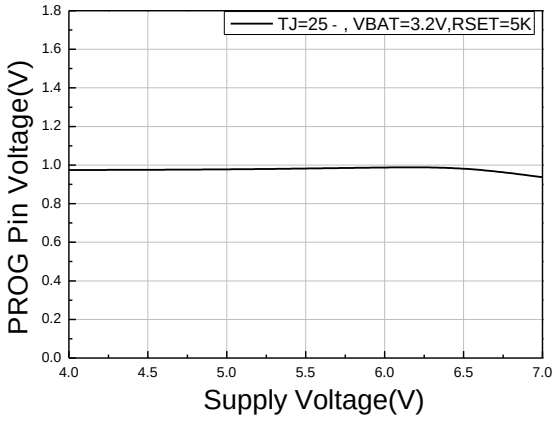
5. CHRG 1 +e#q VS CHRG1 +e » Ä u% +e Å



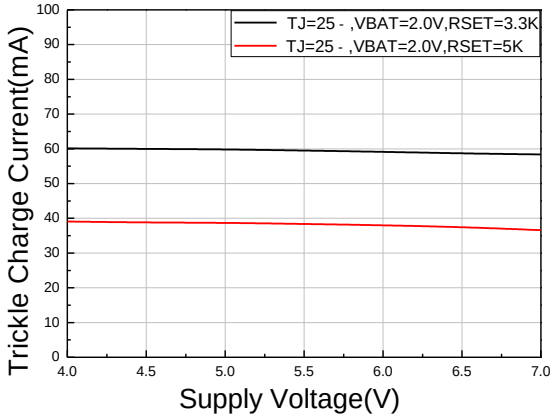
6. PROG1 : ù +e#q VS PROG1 : ù+e »



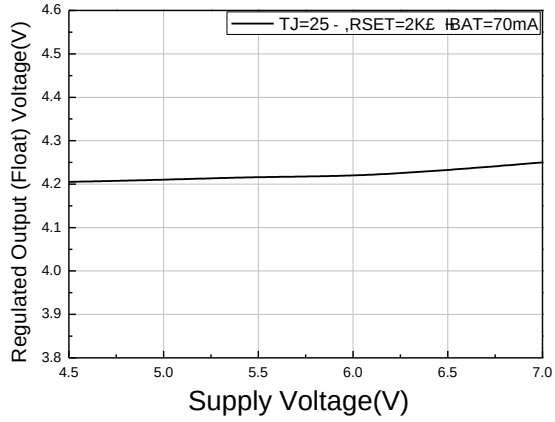
7. PROG1 +e » VS EÃ •+e »



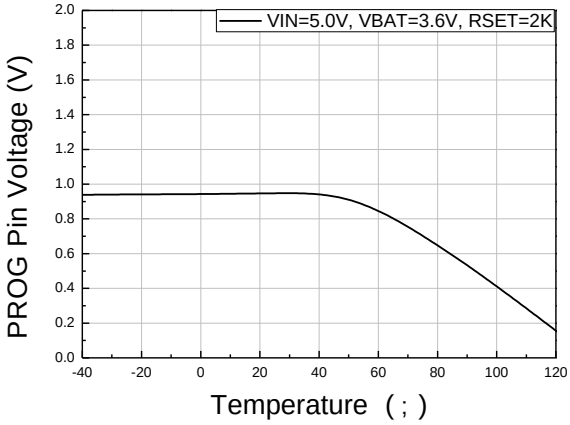
8. #Ã#q u+e+e#qVS EÃ •+e »



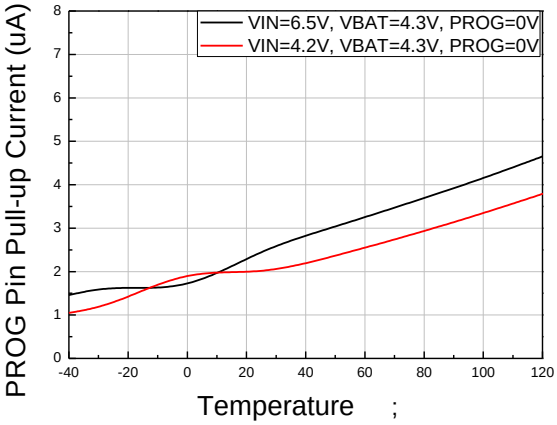
9. VBAT VS EÃ •+e »



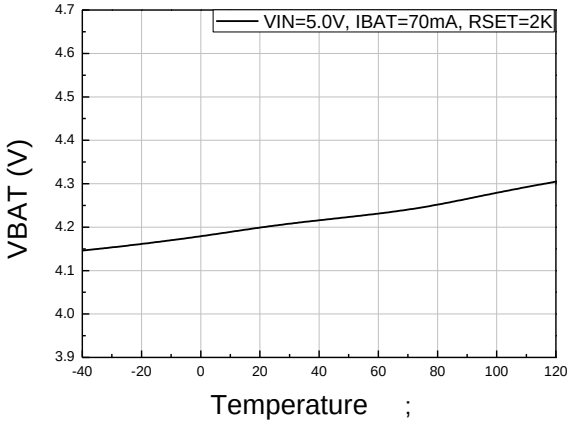
10. PROG1 +e » VS $Y Ö



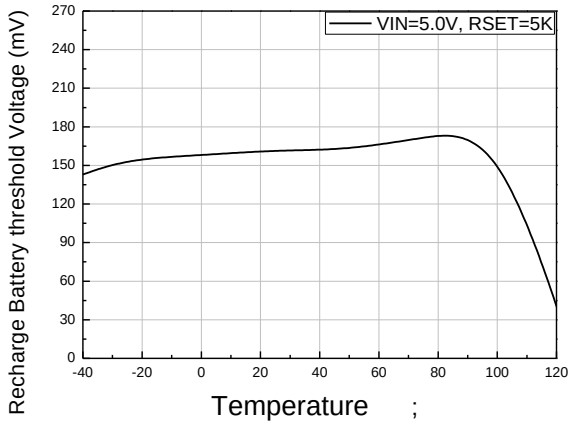
11. PROG1 : ù+e#q VS $Y Ö



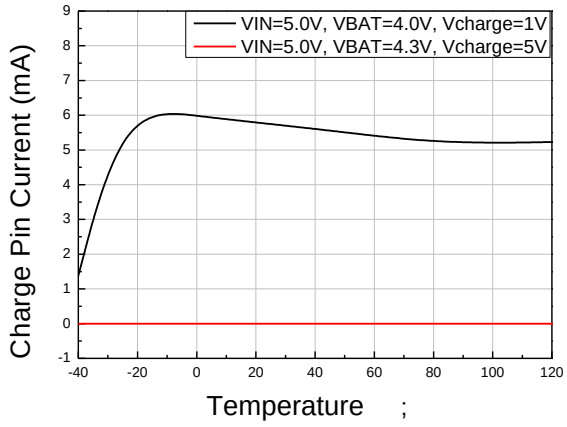
12. BAT 1 $Y Ö "4ï



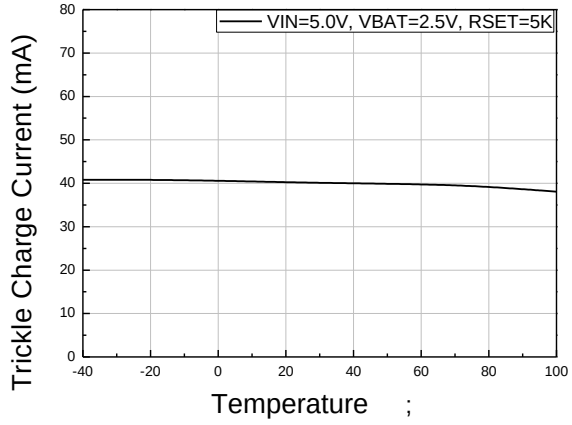
13. ½ u+eF % +e » VS $Y Ö



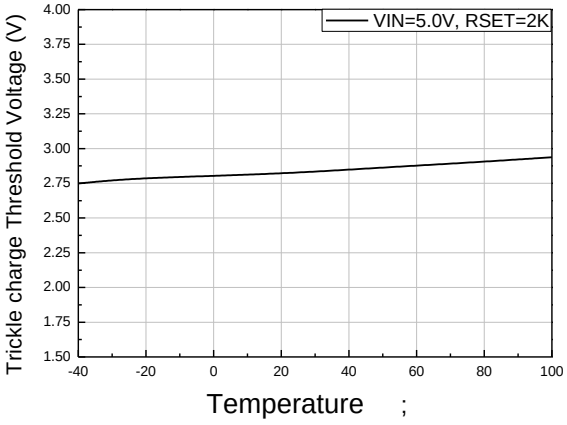
14. CHRG1 +e#q VS $Y Ö



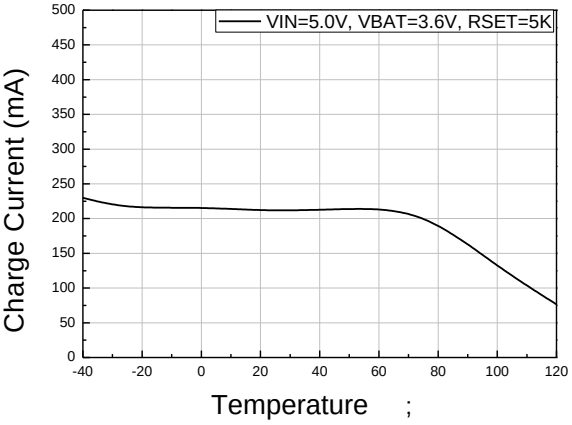
15. #Ã#q u+e+e#qVS $Y Ö



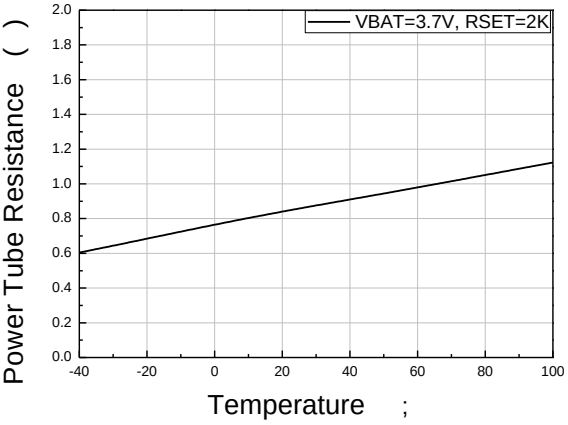
16. #Ã#q u+e ±L€+e » VS $Y Ö



17. u+e+e#q$Y Ö "4ï



18. Ï)·1Ñ µLk VS $Y Ö



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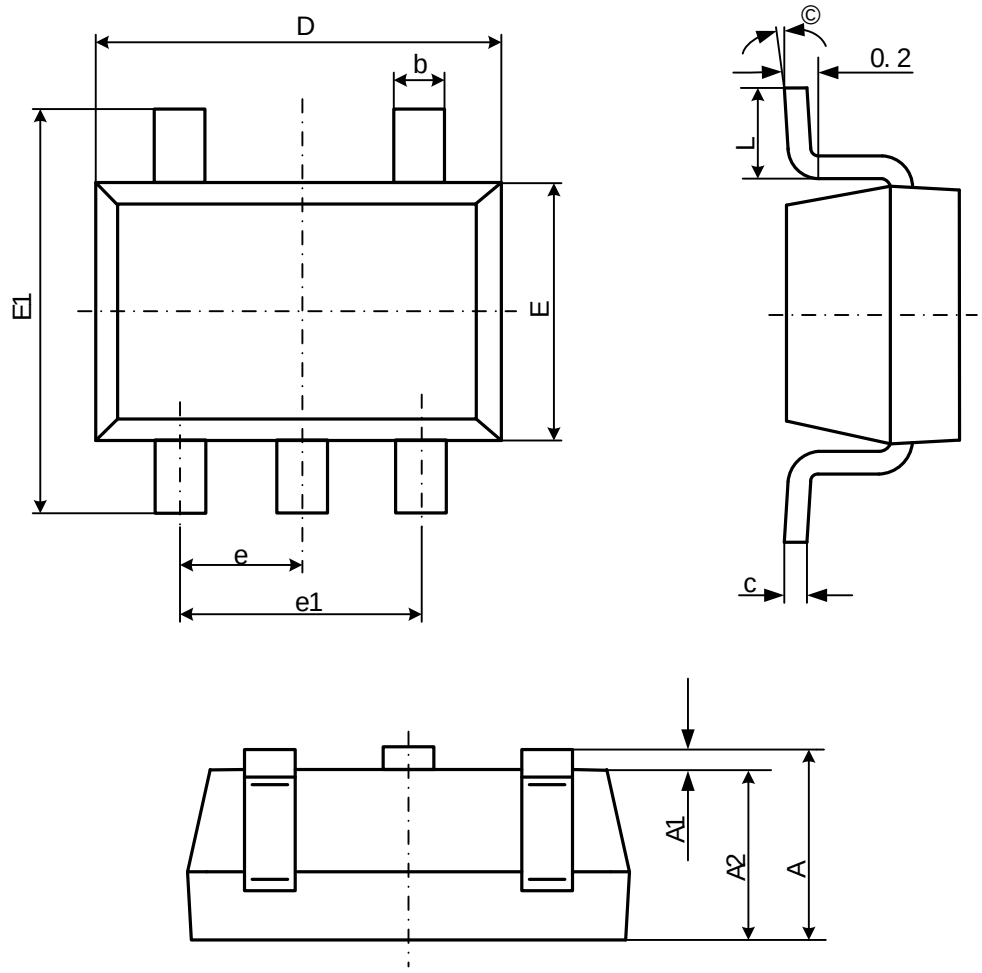
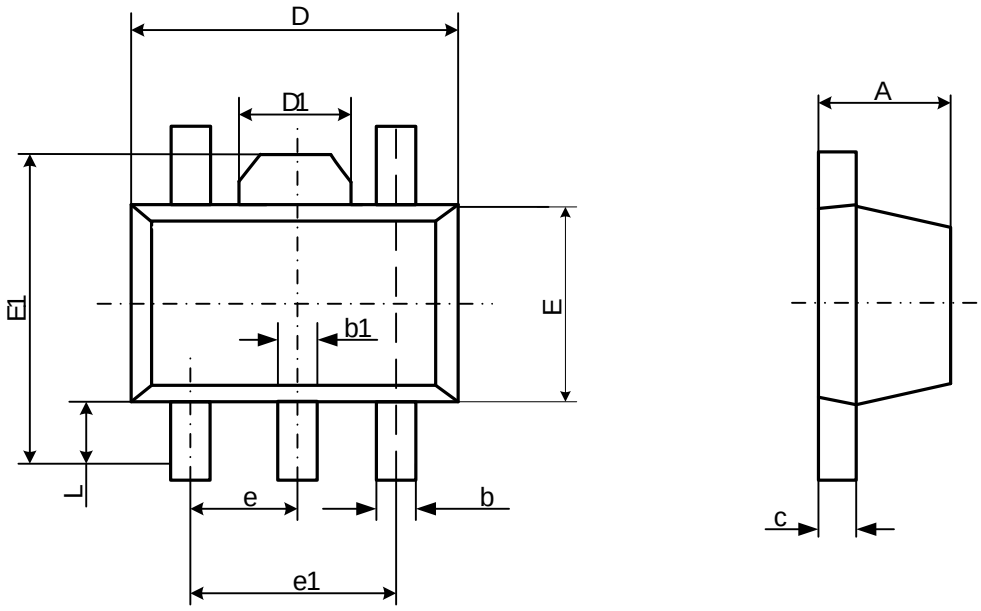


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
	0 e	8 e	0 e	8 e

z SOT-89-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.360	0.560	0.014	0.022
c	0.350	0.400	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

BÑ9¯0''Ç9‰:‹6

:•Gû;12ç,Ã\/+ˆDô Añ>ÿ.L;ßAñ9‰-Ú2>,5< <Â.J+e)[8 /.- >R1™?±-ÝCž C?¿-¥ CB×8à C-¥1™0 8E< -Ý-¥ Í 2î/ÈB»>ã, +F8ÑAÇ0 9,E ?£+e? .y?¦>Ã) @ŠD Cƒ?Š?¦>Ã;(- =‹Cœ8ó;(E ?£+e D< Añ)[8 +e? ;<, E @NB», +F9˜9°; < <Â.J+e? ;<<Ö3 B <Ö0ß D

:•Gû;12ç,Ã\/+ˆDôAñ>ÿ.L;ß ,5AÇAä'ÐD[0 2î/È)[8 :‰0§))ñ+D9¯//AF>R D2î/ÈAÇ,58E; Aä2ç,Ã\/ +e)[8 /.AÇ AäDõ?±-›BÑ D> 2 4`0Ö?,B 2î/È)[8 /.AÇAä? .y+e- >ö Í2î/ÈAÇ<Â.J* ,÷+e:‰0§B):E '"9Œ@ŠD D

2î/È9°2ê) =MAC Í2 .}9¯//AÇAä? .y?¦>Ã0 D)÷9µ2ê6½Aê 2ç,Ã\/ <Â.J Í+L< 5è1L,!4G-›BÑ5[E B 8E)[8 0‘B»8EAÇAäD1; A2ç,Ã\/)[8 ? .y+e< Añ,É5* C,É.‡/.'"9Œ? .yA 9 D2î/È:š6) =MAC Í< 5è2@(YD', B ; ; '"9Œ*Ì; < ?É+e9Œ) DÉA 0•;V/.D ; Í2êB…0Ü.kCp+e> >ö/T.œ C0Á)C.kCp0‘8E/T.œ C1V+nAñ2ê6½BÍ)ê9¬:Ž:l/ +e.kCp+e,Ã:›0 5+))*9,;++R+e) 2)*Ì; D2î/È1L9Œ,O7ƒ)ÆASB»*¬3Á.y0ÝAÇAäD1; Aä9¯// 2ç,Ã \/)[8 ,Y,5 2ç,Ã\/ 0‘8E*Û3ÎBÍ)ê+e9¯//< ; D

,5Aû2ç,Ã\/ +e)[8 ;7)B0 ;^2>(Ž Í1—B»5ÜAñ,56»9¾1™?±9¯//*¼-¥8ó*ÙAñ? .y;;9‰ C<Ö0ß C>ÿD'/.:š6 +e9 3 >ã)&B«?Î1™?±-•D' D2ç,Ã\/ ,5*¬3Á*¼-¥.ž+e>%0ß))ñ+D9¯//BÑ9¯0 AF>R D-•D'+{9Þ,Þ+e?¦>Ã2ê6½?É A - *´,O=ƒ+e>ÿD'<Ö0ß D

2ç,Ã\/ 0) , 8;-Ý?£(_>%+V6»9¾ Í)[8 ; 0«)/;^2ê6½AS?®/&0 C€8E< ;#?) =MAñ<)OAM Í(_>%+V) E > 9¯//6 ; 0 '–; +e+D(D0 ;;9‰

B»DË;2ç,Ã\/)[8 ; Í9È.œ,5-¤)[8)/;^+e)ã;WB 2ç,Ã\/ (‹6 +e)/;^? (i*ÇB»)OAM0 ?Ê0º)ê,÷ ÍBÓ0 ; 9†? .y 2ç,Ã\/)[8 +e< Añ6 ; 0 '–; ;;9‰ Í8óCƒ;() Cž+R+e C8<CJ?µ:mA ?±> D 2ç,Ã\/ ,59¯//*¬3Á?Ê0º)ã;W2Z))ñ+D9¯//BÑ9¯0 AF>R D