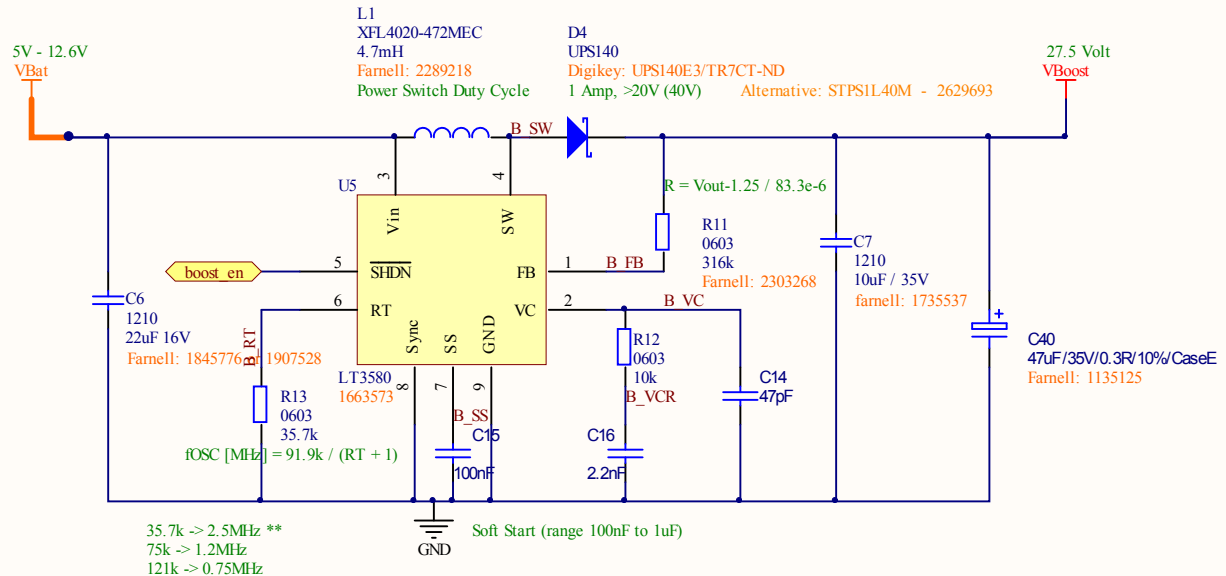



Total board estimate: 7 Watt transmit slot (8ms) - 0.6 Watt in between (81ms)

Power:

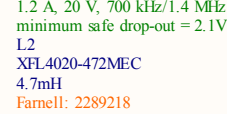
- The supply voltage droop over for a 8.3ms burst of 25 Watt
- Max connector current 1 Amp
- Min voltage after 8.3ms : 10.5

ofwel: 3.3uH, Farnell 2289217

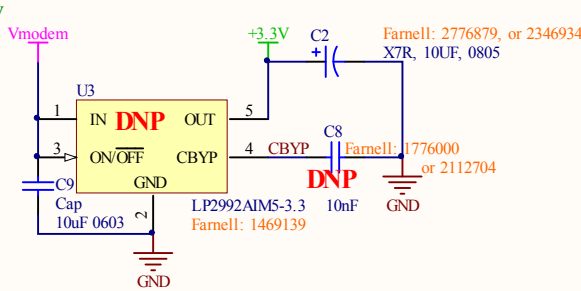


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Size		Number		Revision	
A4				v1.0	
Date:		20-6-2018		Sheet of	
File:		E:\SubVersion\...\Boost_SchDoc		Drawn By: MavLab - TUDelft	

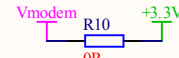
## BUCKDCDC - Modem Logic and uC



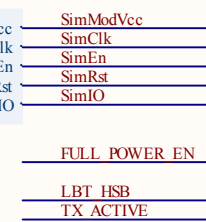
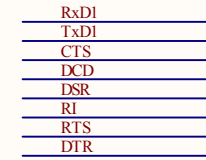
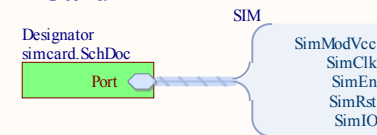
## uC Power options



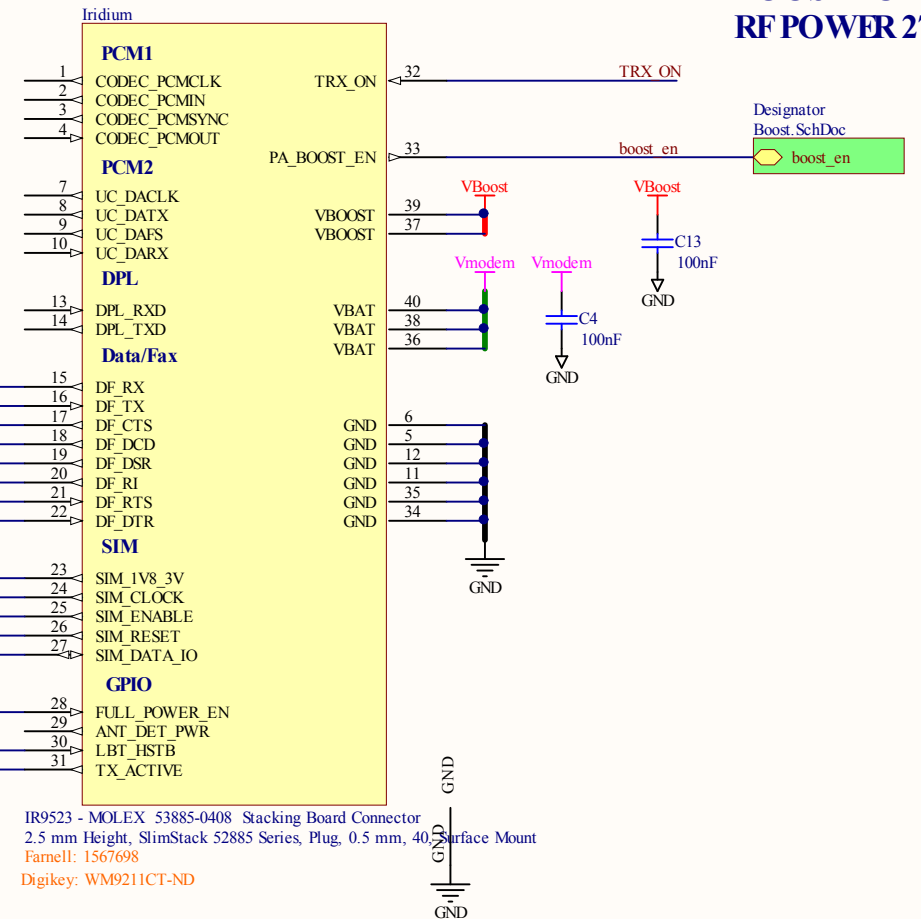
Either place U3 and C8, or place 0R on R10, never both!



## SimCard



# IridiumPhone V1.0

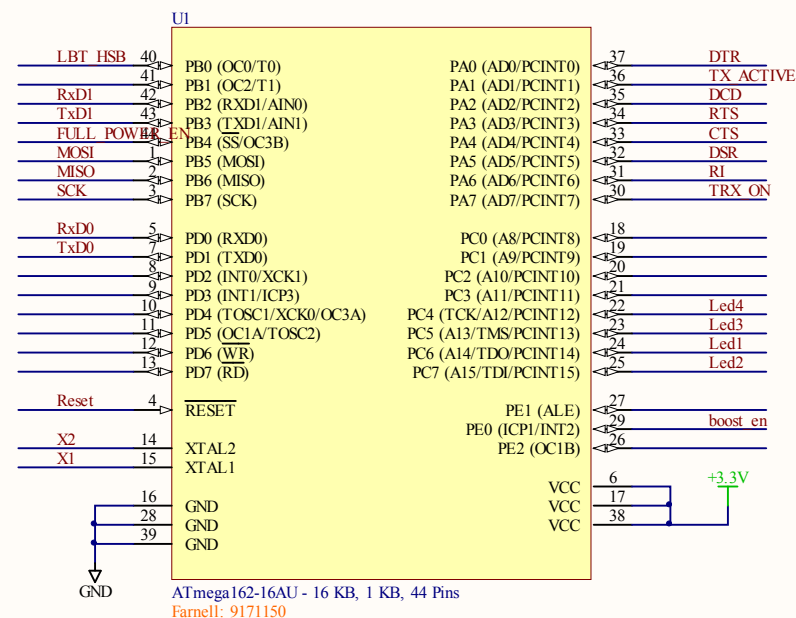


IR9523 - MOLEX 53885-0408 Stacking Board Connector  
2.5 mm Height, SlimStack 52885 Series, Plug, 0.5 mm, 40-Pin, Surface Mount  
Farnell: 1567698  
Digikey: WM9211CT-ND

### IR Module Power Requirements:

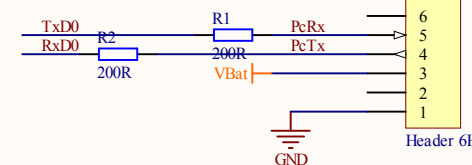
- 3.2 to 6 Volt input: 0.5 Amp capable
- 8.3 ms every 45ms: 300 mA followed by 60mA standby ( $(8.3 \times 300 + 36.7 \times 60) / 45 = 110\text{mA}$  average
- startup surge could be 2A!
- VBAT is the input from a Lithium-ion battery or other low-voltage source via the user connector. It must be in the range 3.2 to 6V and capable of supplying a maximum current of 500mA

## MicroController:

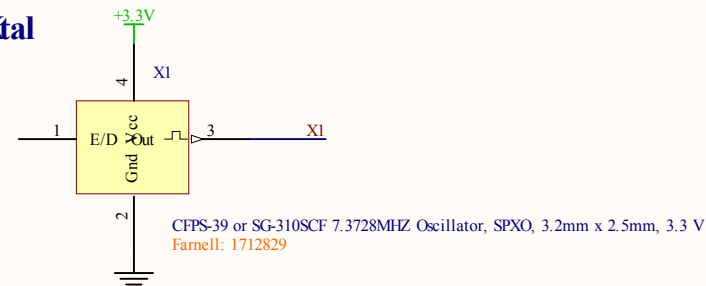


ATmega162-16AU - 16 KB, 1 KB, 44 Pins  
Farnell: 9171150

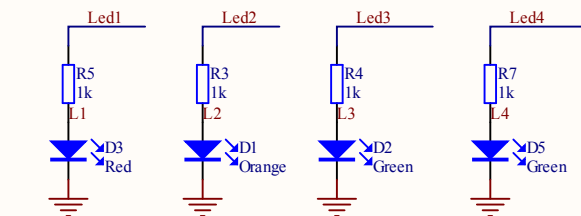
**FDI**



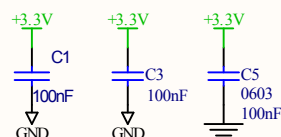
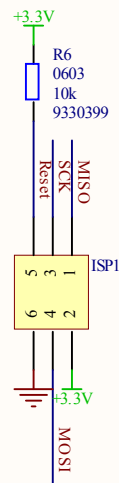
## Xtal




CFPS-39 or SG-310SCF 7.3728MHZ Oscillator, SPXO, 3.2mm x 2.5mm, 3.3 V  
Farnell: 1712829

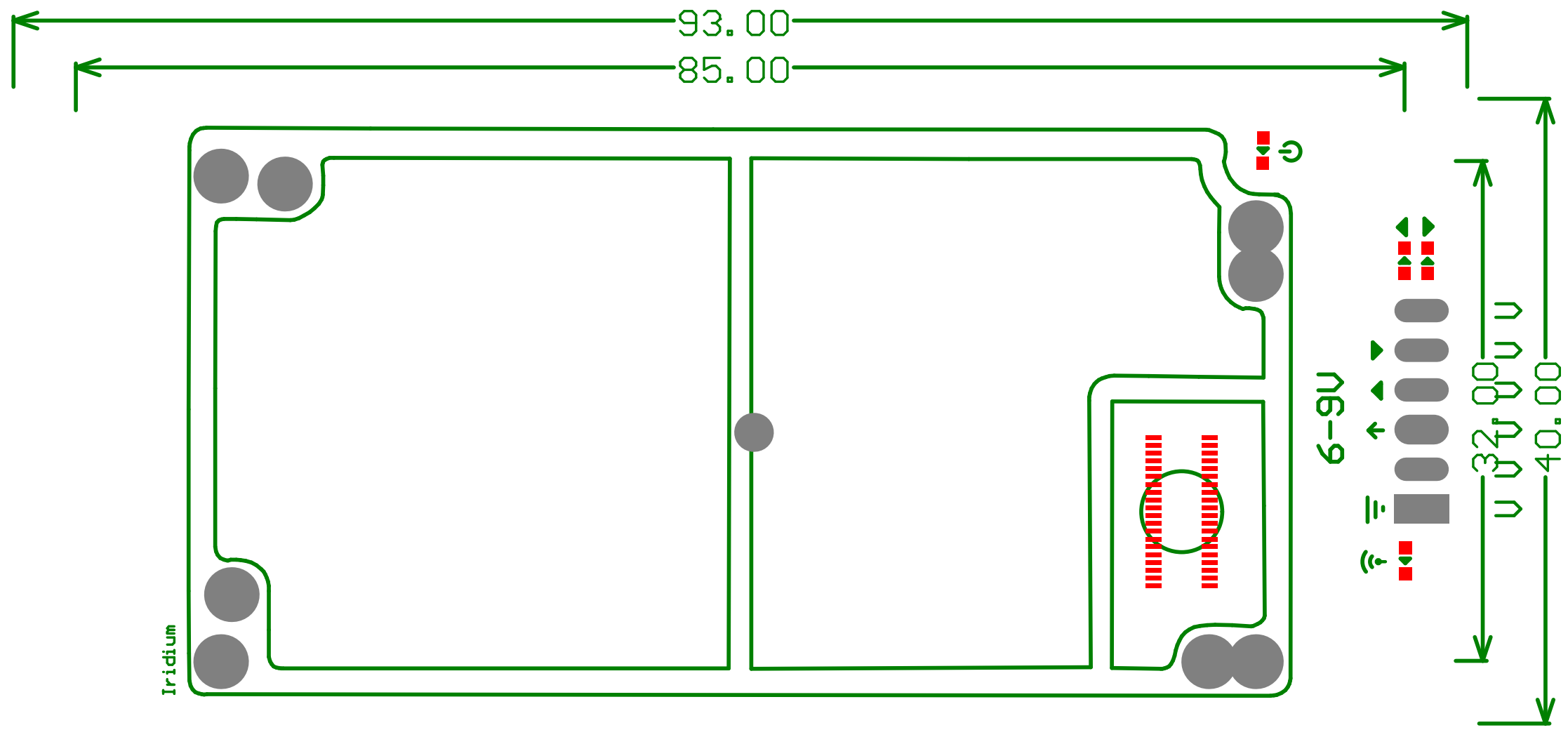


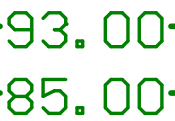
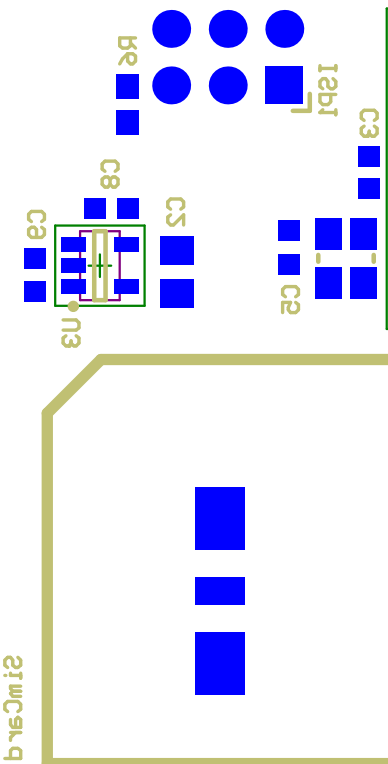
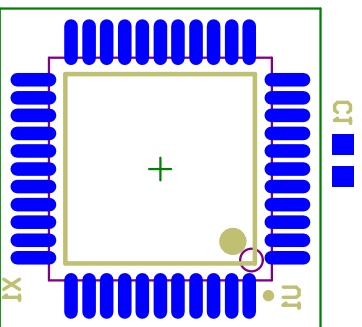
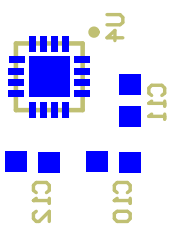
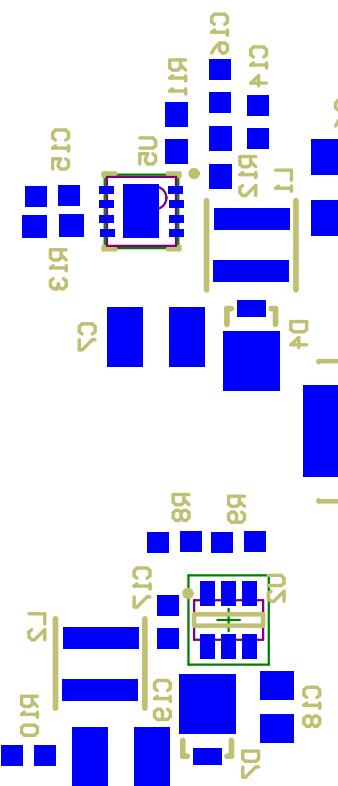
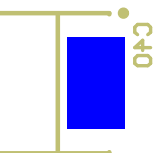
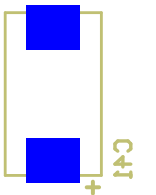
# Programming



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Date:	20-6-2018	Sheet of	
File:	E:\SubVersion\...IridiumPhoneCarrier.Sch	Drawn By:	MayLab - TU Delft







Quantity	Designator	value	Footprint	Comment	Description	Famell	LibRef
1	C40		E	47uF/ 35V/ 0.3R/ 10 % CaseE		1135125	ELECTRO1
1	C41		T491D	min 100uF, 10V CASE D 73x43mm		113-5058	ELECTRO1
1	Iridium		iridiumphone	IR9523 - MOLEX 53885-0408 Stacking Board Connector		1567698	IR9523
1	SimCard		simcard	MOLEX 47388-2001 CONNECTOR, SIM CARD, 1.9MM HEIGHT		2060729	SIMCARD
1	U1		44A_M	ATmega162-16AU - 16 KB, 1 KB, 44 Pins	8-Bit AVR Microcontroller with 16K Bytes of In-System Programmable Flash Memory	9171150	ATmega162-16AC
1	U5		DFN-MF8	LT3580	Boost DCDC	1663573	LT3580
2	D4, D7		DO-216AA	B230A 30 V, 2 A, DO-214AC, 0.5V, UPS140	Silicon RF Schottky Diode for Mixer Applications in the VHF/ UHF Range	1843686	Diode BAT17
4	D1, D2, D3, D5		KP-1608SURC_R	D11	Diode, LED		D11
1	R10	0R	V0603RES		Resistor		R12
4	R3, R4, R5, R7	1k	V0603RES	R12	Resistor		R12
2	L1, L2	4.7mH	XFL4020	XFL4020-472MEC	Inductor	2289218	Inductor
2	R6, R12	10k	0603RES	0603	RESISTOR, 0603 10K	9330399	Res2
2	C8, C17	10nF	V0603	Cap	Capacitor	1776000	Cap
1	C9	10uF 0603	V0603	Cap	Capacitor		Cap
1	C18	10uF 0805	V0805	Cap	Capacitor		Cap
1	C7	10uF / 35V	1210	1210	Ceramic Chip Capacitor - Standard	1735537	C0603
1	R9	10.2k	V0603RES	R12	Resistor	1652829	R12
1	X1	16MHz	CRY_2_5x3_2	Xtal Osc	Crystal Oscillator	1712829	CPPS-39 2.5 x 3mm 16MHz
1	C19	22uF	1210	Cap	Capacitor		Cap
1	C6	22uF 16V	1210	1210	Ceramic Chip Capacitor - Standard	1845776 or 1907528	C0603
1	R8	31.6k	V0603RES	R12	Resistor	2138454	R12
1	R13	35.7k	0603RES	0603	RESISTOR, 0603 10K		Res2
11	C1, C3, C4, C5, C10, C11, C12, C13, C14, C15, C16	100nF	V0603	2.2nF, 47pF, 100nF, 0603	Ceramic Chip Capacitor - Standard		C0603, CAP
2	R1, R2	200R	V0603RES	R12	Resistor		R12
1	R11	316k	0603RES	0603	RESISTOR, 0603 10K	2303268	Res2
1	U2	ADP2300AUJZ	SOT-23-OT6_N	ADP2300	SOT23-6 DCDC Switcher	1843650	LM2734
1	U3	LP2992AIM5-3.3	MF05A_N	LP2992AIM5-3.3	Micropower 250 mA Low-Noise Ultra Low-Dropout Regulator, 5-pin SOT-23	1469139	LP2992AIM5-3.3
1	U4	NCN4555	QFN16_3MM	NCN4555		2534480	NCN4555
1	C2	X7R, 10UF, 0805	V0805	TAJR475K006RNJ	Polarized Capacitor (	2776879, or 234693	Cap Pol3