

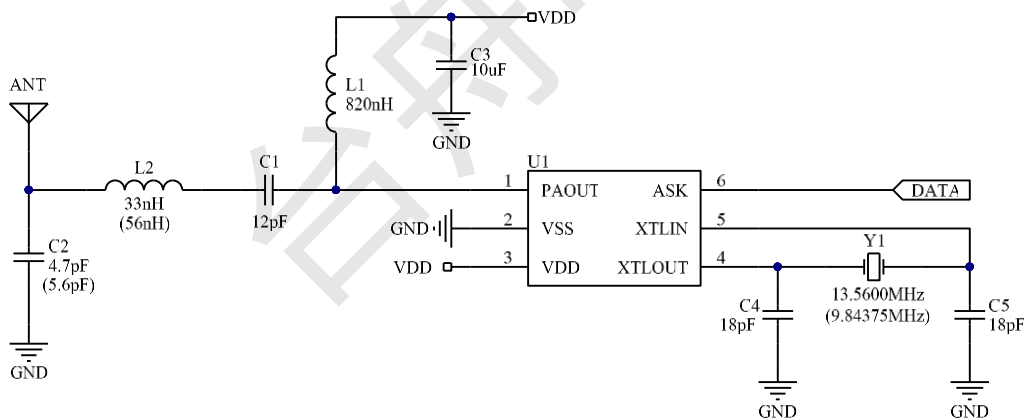
Features

- Complete UHF transmitter
- Frequency range 300MHz to 450MHz
- Data rates up to 10kbps ASK
- Output Power to 10dBm
- Low external part count
- Low voltage operation (down to 1.8V)
- Operate with crystals or ceramic resonators

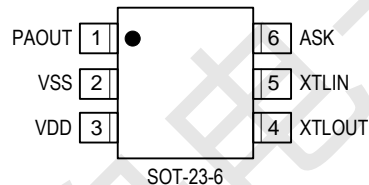
Applications

- Fan Controllers
- Remote Power Switches
- Multi-Media Remote Control
- Remote Sensor Data Links
- Infrared Transmitter Replacement

TYPICAL APPLICATION



PIN CONFIGURATION



Pin Number SOT23-6	Pin Name	Pin Function
1	PA_OUT	Bandwidth Selection Bit 0 (Digital Input): Used in conjunction with SEL1 to set the desired demodulator filter bandwidth. See Table 1. Internally pulled-up to VDDRF
2	VSS	Ground
3	VDD	Voltage Drain Drain (Input): Positive Power Supply
4	XTLOUT	Crystal Out (Output): Reference oscillator output connection.
5	XTLIN	Crystal In (Input): Reference oscillator input connection.
6	ASK	ASK DATA Input

Absolute Maximum Ratings

Supply Voltage (V_{DD})	+5V
Input/Output Voltage (V_{IO})	$V_{SS}-0.3$ to $V_{DD}+0.3$
Voltage on PA_OUT (V_{PA_OUT})	+7.2V
Storage Temperature Range (T_S)	-65 °C to +150 °C
Lead Temperature (soldering, 10 sec.)	+300 °C
ESD Rating	2KV ⁽³⁾

Operating Ratings

RF Frequency Range	300MHz to 450MHz
Supply Voltage (VDD)	+1.8V to +3.6V
Ambient Temperature (T_A)	-40 °C to +85 °C

Electrical Characteristics ($T_A=25\text{ C}$ unless otherwise noted)

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($V_{IN}=5V$, $T_A = 25^{\circ}C$ unless otherwise specified)

Specifications apply for $V_{DD} = 3.0V$, $T_A = 25\text{ }^{\circ}C$, $Freq_{REFOSC} = 13.560MHz$, $EN = V_{DD}$. Bold values indicate $-40\text{ }^{\circ}C$ to $85\text{ }^{\circ}C$ unless otherwise noted. 1kbps data rate 50% duty cycle. R_L 50ohm load (matched)

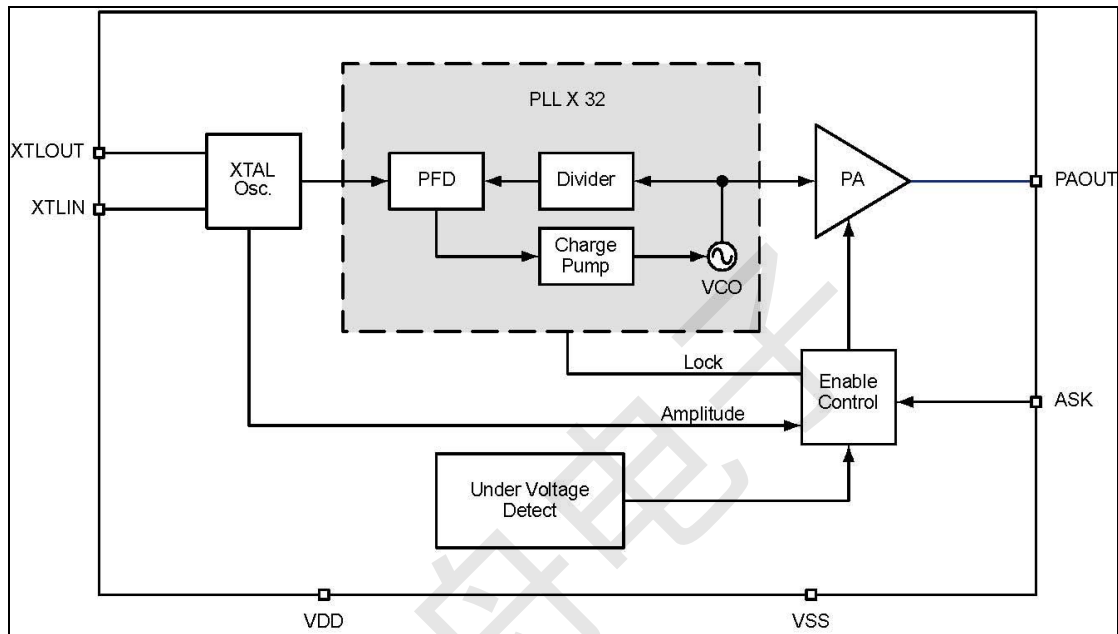
Parameter	Condition	Min	Typ	Max	Units
Power Supply					
Mark Supply Current I_{ON}	@ 315MHz, $P_{OUT} = +10dBm$		12.3		mA
	@ 433.92MHz, $P_{OUT} = +10dBm$		12.5		mA
SPACE supply current, I_{OFF}	@ 315MHz		3		mA
	@ 433.92 MHz		3		mA
Standby Mode (For F115 and F117)					
Standby supply current, I_{STB}	@ 315MHz			1	μA
	@ 433.92 MHz			1	μA
Standby delay time	ASK transition from HIGH to LOW	30	75	120	ms
	ASK transition from LOW to HIGH	500	700	900	μs
RF Output Section and Modulation Limits:					
Output power level, P_{OUT} ASK "mark"	@315MHz ⁽⁴⁾		10		dBm
	@433.92MHz ⁽⁴⁾		10		dBm
TPG113S6	@ 630MHz ⁽⁴⁾ 2nd harm.		-39		dBc
Harmonics output for 315MHz	@945MHz ⁽⁴⁾ 3rd harm.		-53		dBc
	@ 867.84MHz ⁽⁴⁾ 2nd harm.		-55		dBc
Harmonics output for 433.92 MHz	@1301.76MHz ⁽⁴⁾ 3rd harm.		-55		dBc
	Extinction ratio for ASK		70		dBc
ASK Modulation					

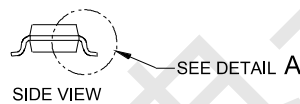
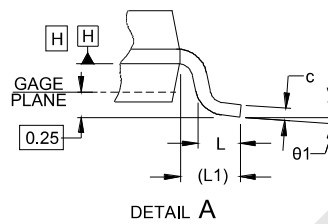
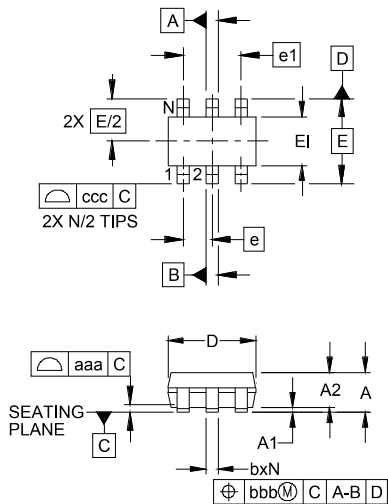
Data Rate				10	kbps
Occupied Bandwidth	@315MHz ⁽⁶⁾		<700		kHz
	@433.92MHz ⁽⁶⁾		<1000		kHz
VCO Section					
315 MHz Single Side Band Phase Noise	@ 100kHz from Carrier		-76		dBc/Hz
	@ 1000kHz from Carrier		-79		dBc/Hz
433.92 MHz Single Side Band Phase Noise	@ 100kHz from Carrier		-72		dBc/Hz
	@ 1000kHz from Carrier		-81		dBc/Hz
Reference Oscillator Section					
XTLIN, XTLOUT	Pin capacitance		2		pF
External Capacitance	See Schematic C17 & C18		18		pF
Oscillator Startup Time ⁽⁵⁾	Crystal: HC49S		300		μs
Digital / Control Section					
Output Blanking	VDD transition from LOW to HIGH		500		μs
Digital Input ASK Pin	High (V_{IH})	$0.8 \times V_{DD}$			
	Low (V_{IL})			$0.2 \times V_{DD}$	V
Digital Input Leakage Current ASK Pin	High (V_{IH})		0.05		
	Low (V_{IL})		0.05		μA
Under Voltage Lock Out (UVLO)			1.6		

Notes:

1. Exceeding the absolute maximum rating may damage the device.
2. The device is not guaranteed to function outside its operating rating.
3. Devices are ESD sensitive. Handling precautions recommended. Human body model, 1.5k in series with 100pF.
4. Measured using Test Circuit in Figure
5. Dependent on crystal
6. RBW = 100kHz, OBW measured at -20dBc.

BLOCK DIAGRAM





DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.057	0.90	-	1.45
A1	.000	-	.006	0.00	-	0.15
A2	.035	.045	.051	.90	1.15	1.30
b	.010	-	.020	0.25	-	0.50
c	.003	-	.009	0.08	-	0.22
D	.110	.114	.118	2.80	2.90	3.00
E1	.060	.063	.069	1.50	1.60	1.75
E	.110 BSC			2.80 BSC		
e	.037 BSC			0.95 BSC		
e1	.075 BSC			1.90 BSC		
L	.012	.018	.024	0.30	0.45	0.60
L1	(0.024)			(0.60)		
N	6			6		
θ1	0°	-	10°	0°	-	10°
aaa	.004			0.10		
bbb	.008			0.20		
ccc	.008			0.20		