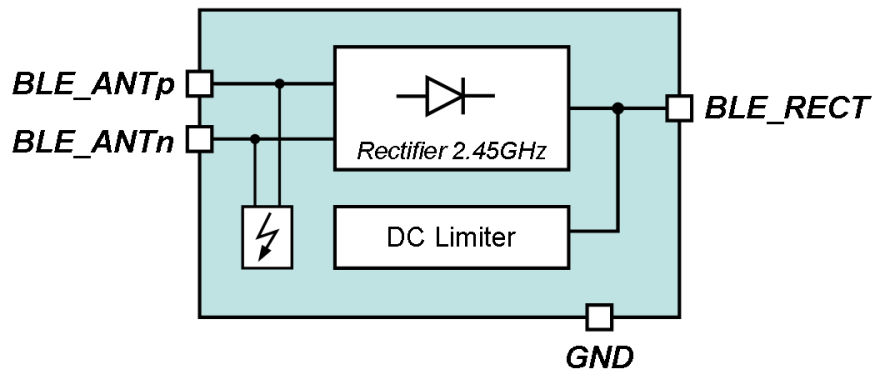


0.8 to 2.5GHz full wave rectifier with ESD protection
OVERVIEW


130GF_RECT_01 intended for use in Bluetooth Low Energy applications. IP derives power from an RF electromagnetic field, which is received and rectified. The rectified voltage can be used to power various units. At the output with the rectifier is a parallel DC Limiter, which drains (shunts to the ground) excess energy (in the form of current) in case BLE_RECT voltage exceeds limiter clamping voltage. An ESD protection block is located at the rectifier input.

IP technology: Global Foundries Embedded EEPROM 0.13 um.

IP status: pre-silicon verification

Total area: 0.0477mm²

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units	
			min	typ.	max		
Operating temperature range	T	-	-40	+27	+85	°C	
Operating carrier frequency	Fc	-	800	-	2500	MHz	
Limiter clamping voltage	VLIM	-	2.8	3.3	3.8	V	
Maximum output power	Pout	Fc=915MHz	Pin=0dBm	-	0.3	-	mW
			Pin=5dBm	-	0.9	-	
			Pin=10dBm	-	2.2	-	
			Pin=15dBm	-	2.9	-	
			Pin=20dBm	-	3.4	-	
		Fc=2445MHz	Pin=0dBm	-	0.3	-	
			Pin=5dBm	-	1.0	-	
			Pin=10dBm	-	2.5	-	
			Pin=15dBm	-	4.4	-	
			Pin=20dBm	-	5.6	-	
Impedance	Z	Fc=860MHz	-	149-j247	-	Ω	
		Fc=915MHz	-	139-j240	-		
		Fc=960MHz	-	131-j234	-		
		Fc=2400MHz	-	31-j124	-		
		Fc=2445MHz	-	30-j122	-		
		Fc=2484MHz	-	29-j121	-		
Typical assembled impedance*	ZA	Fc=915MHz	-	121-j229	-	Ω	
		Fc=2445MHz	-	25-j112	-		
Diode voltage drop	Vdio	Pin=0dBm	-	0.2	-	V	
		Pin=20dBm	-	-	0.5		
Diode leakage current	Idio	-	-	<0.3	<0.5	uA	

*antenna shall be matched to this impedance assuming 50fF additional assembly capacitance at IP bumping