CEL

3 V, SUPER MINIMOLD SILICON MMIC WIDEBAND AMPLIFIER

UPC2745TB UPC2746TB

FEATURES

- **HIGH DENSITY SURFACE MOUNTING:**
  6 pin super minimold or SOT-363 package
- **LOW SUPPLY VOLTAGE:** V_{CC} = 1.8 to 3.3 V
- **WIDEBAND RESPONSE:**
  UPC2745TB: fu = 2.7 GHz TYP
  UPC2746TB: fu = 1.5 GHz TYP
- **HIGH ISOLATION:**
  UPC2745TB: ISOL = 38 dB TYP
  UPC2746TB: ISOL = 45 dB TYP

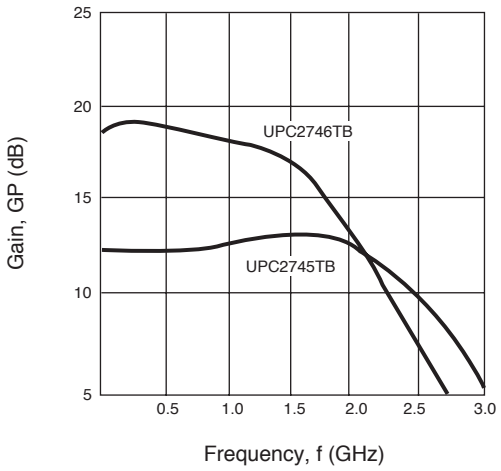
DESCRIPTION

NEC's UPC2745TB and UPC2746TB are Silicon MMIC Wideband Amplifiers manufactured using NEC's 20 GHz f_T NESAT™ III silicon bipolar process. These devices are designed for use as buffer amps in mobile communication applications such as Cellular, PCS, and Cordless handsets, and WLAN transceivers. The UPC2745/46TB are pin compatible and have comparable performance as the larger UPC2745/46T, so they are suitable for use as a replacement to help reduce system size. These IC's are housed in a 6 pin super minimold or SOT-363 package.

NEC's stringent quality assurance and test procedure ensure the highest reliability and performance.

TYPICAL PERFORMANCE CURVES

GAIN vs. FREQUENCY



ELECTRICAL CHARACTERISTICS (T_A = +25 °C, Z_L = Z_S = 50 Ω)

PART NUMBER PACKAGE OUTLINE			UPC2745TB S06			UPC2746TB S06		
SYMBOLS	**PARAMETERS AND CONDITIONS**	**UNITS**	**MIN**	**TYP**	**MAX**	**MIN**	**TYP**	**MAX**
I_{CC}	Circuit Current (no signal), V_{CC} = 3.0 V	mA	5.0	7.5	10.0	5.0	7.5	10.0
	V_{CC} = 1.8 V	mA		4.5			4.5	
G_P	Power Gain, V_{CC} = 3.0 V, f = 0.5 GHz	dB	9.0	12	14	16	19	21
	V_{CC} = 3.0 V, f = 1 GHz	dB		12			18.5	
	V_{CC} = 3.0 V, f = 2 GHz	dB		11				
	V_{CC} = 1.8 V, f = 500 MHz	dB		7			14	
fU	Upper Limit Operating Frequency							
	(3 dB down from the gain at f = 100 MHz) V_{CC} = 3.0 V	GHz	2.3	2.7		1.1	1.5	
	V_{CC} = 1.8 V	GHz		1.8			1.1	
$P_{O(SAT)}$	Maximum Output Level							
	V_{CC} = 3.0 V, f = 0.5 GHz, P_{IN} = -6 dBm	dBm	-4	-1		-3	0	
	V_{CC} = 3.0 V, f = 1 GHz, P_{IN} = -6 dBm	dBm		-2.5			-1	
	V_{CC} = 3.0 V, f = 2 GHz, P_{IN} = -6 dBm	dBm		-3.5				
	V_{CC} = 1.8 V, f = 500 MHz, P_{IN} = -10 dBm	dBm		-11			-8	
NF	Noise Figure, V_{CC} = 3.0 V, f = 0.5 GHz	dB		6	7.5		4.0	5.5
	V_{CC} = 3.0 V, f = 1 GHz	dB		5.5			4.2	
	V_{CC} = 3.0 V, f = 2 GHz	dB		5.7				
	V_{CC} = 1.8 V, f = 500 MHz	dB		8.0			5.0	

CEL California Eastern Laboratories

4590 Patrick Henry Drive
Santa Clara, CA 95054-1817
Telephone: (408) 919-2500
Facsimile: (408) 988-0279

Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL's understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
		-A	-AZ
Lead (Pb)	< 1000 PPM	Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.

Important Information and Disclaimer: Information provided by CEL on its website or in other communications concerting the substance content of its products represents knowledge and belief as of the date that it is provided. CEL bases its knowledge and belief on information provided by third parties and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. CEL has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. CEL and CEL suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.
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