

REFERENCE GUIDE:

Connectorized Evaluation Modules for MMIC Parts



Connectorized Evaluation Modules for MMIC Devices

At Mini-Circuits, we strive to provide the best engineering resources to help you evaluate our products for your specific applications. In addition to our standard evaluation boards, many of our connectorized modules are the perfect evaluation and testing tool for our surface mount MMIC devices, incorporating the required matching, biasing and other peripheral circuitry for immediate use on your bench.

We've compiled this convenient cross-reference to help you identify connectorized modules corresponding to surface-mount MMICs of interest at a glance. We hope this information supports your component evaluation process. If you have any questions about a specific part, please reach out to our Applications Engineering team at apps@minicircuits.com.



Amplifiers

Connectorized Module	MMIC	Sub Category	F Low (MHz)	F High (MHz)	Gain (dB) Typ.	NF (dB) Typ.	P1 (dB)
ZVE-0234LNX-K+	AVA-0233LN-DG+	Low Noise Amplifier	2000	30000	16.5	2.5	13.5
ZX60-223LPN+	LVA-273PN+	Gain Block	10	22000	16	5.5	17
ZX60-24A-S+	AVA-24A+	Gain Block	5000	20000	24	6.4	18.3
ZX60-10223G+	PMA3-223GLN+	Low Noise Amplifier	10000	20000	26	2.3	10
ZX60-R5183P+	AVA-183P+	Gain Block	500	18000	8.2	4.5	10.8
ZX60-183-S+	AVA-24+	Gain Block	6000	18000	23.5	6.9	18.1
ZX60-183A-S+	AVA-183A+	Gain Block	6000	18000	28	5	18
ZX60-04183LN+	PMA2-183LN+	Low Noise Amplifier	4000	18000	12	2.5	15
ZX60-06183P+	PMA-183PLN+	Low Noise Amplifier	6000	18000	24	1.6	8
ZX60-153LN-S+	PMA2-153LN+	Low Noise Amplifier	500	15000	16	2.8	15
ZX60-123LN-S+	PMA2-153LN+	Low Noise Amplifier	500	12000	17	2.4	16
ZX60-123LPN+	GVA-123+	Gain Block	50	10000	16	4.3	13.5
ZX60-14LN-S+	PMA3-14LN+	Low Noise Amplifier	50	10000	22	1.5	21
ZX60-8008E-S+	ERA-1SM+	Gain Block	20	8000	9	4.1	9.3
ZX60-83MP-S+	PMA3-83MP+	Gain Block	400	8000	20	3.2	27
ZX60-83LN-S+	PMA3-83LN+	Low Noise Amplifier	500	8000	22.1	1.4	20.7
ZX60-83LN12+	PMA3-83LN+	Low Noise Amplifier	500	8000	22.1	1.4	20.7
ZX60-5916MA-S+	MNA-7A+	Gain Block	1500	6000	18	6.6	16.5
ZX60-6013E-S+	ERA-2SM+	Gain Block	20	6000	14	3.3	10.3
ZX60-V81-S+	GVA-81+	Gain Block	20	6000	9.7	8	18.5

Connectorized Module	MMIC	Sub Category	F Low (MHz)	F High (MHz)	Gain (dB) Typ.	NF (dB) Typ.	P1 (dB)
ZX60-V82-S+	GVA-82+	Gain Block	20	6000	13.5	6.8	20
ZX60-V62+	GVA-62+	Gain Block	50	6000	15.4	5.1	19
ZX60-V63+	GVA-63+	Gain Block	50	6000	20.3	3.7	17.8
ZX60-63GLN+	PMA3-63GLN+	Low Noise Amplifier	1800	6000	27.8	1.2	13.6
ZX60-542LN-S+	LEE-19+	Low Noise Amplifier	4400	5400	24	1.9	10
ZX60-53LN+	TSS-53LNB+	Low Noise Amplifier	500	5000	21	1.45	19
ZX60-53LNB-S+	TSS-53LNB+	Low Noise Amplifier	500	5000	20	1.45	19.5
ZX60-V83-S+	GVA-83+	Gain Block	20	4700	16.8	6	17
ZX60-43-S+	GVA-84+	Gain Block	0.5	4000	17	5.4	17.3
ZX60-43LPN+	GVA-84+	Gain Block	0.5	4000	20	5.8	21
ZX60-4016E-S+	ERA-5SM+	Gain Block	20	4000	18	3.9	16.5
ZX60-362GLN-S+	TAMP-362GLN+	Low Noise Amplifier	3300	3600	20	0.9	16
ZX60-362LN-S+	TAMP-362LN+	Low Noise Amplifier	3300	3600	11.5	0.9	10.5
ZX60-3018G-S+	GALI-3+	Low Noise Amplifier	20	3000	20	2.7	11.8
ZX60-P33ULN+	PMA2-33LN+	Low Noise Amplifier	400	3000	14.8	0.4	17.4
ZX60-33LNR-S+	PSA-545+	Low Noise Amplifier	50	3000	14.1	1.1	19
ZX60-P103LN+	PGA-103+	Low Noise Amplifier	50	3000	13	0.6	22.5
ZX60-272LN-S+	TAMP-272LN+	Low Noise Amplifier	2300	2700	14	0.8	18.5
ZX60-P105LN+	PGA-105+	Low Noise Amplifier	40	2600	15	2	20
ZX60-2510MA-S+	MNA-2A+	Gain Block	500	2500	15	5.4	20
ZX60-2514MA-S+	MNA-4A+	Gain Block	500	2500	17.8	4.5	19
ZX60-2531MA-S+	MNA-5A+/MNA-4A+	Gain Block	500	2500	40	3.1	19
ZX60-2522MA-S+	MNA-6A+	Low Noise Amplifier	500	2500	24	2.6	20.5

Connectorized Module	MMIC	Sub Category	F Low (MHz)	F High (MHz)	Gain (dB) Typ.	NF (dB) Typ.	P1 (dB)
ZX60-2534MA-S+	MNA-6A+/MNA-4A+	Low Noise Amplifier	500	2500	43	2.6	19
ZX60-H242+	HXG-242+	Gain Block	700	2400	14.5	3	23
ZX60-2411BM-S+	PHA-22+	Gain Block	800	2400	11.5	3.5	24
ZX60-242GLN-S+	TAMP-242GLN+	Low Noise Amplifier	1710	2400	30	0.85	20
ZX60-242LN-S+	TAMP-242LN+	Low Noise Amplifier	1710	2400	13	0.75	16.5
ZX60-P162LN+	PMA2-162LNA+	Low Noise Amplifier	700	1600	22.5	0.5	19.9
ZX60-112LN+	PMA-545G1+	Low Noise Amplifier	400	1100	27	1.2	16.5
ZX60-0916LN-S+	TAMP-960LN+	Low Noise Amplifier	824	960	18	0.55	16.5
ZX60-100VH+	LEE-59+	Gain Block	0.3	100	36	4	30
ZX60-100VHX+	LEE-59+	Gain Block	0.3	100	36	4	30

Mixers

Connectorized Module	MMIC	RF & LO Freq. Low	RF & LO Freq. High	IF Freq. Low	IF Freq. High	Conversion Loss Typ.	LO RF Iso	LO IF Iso	Sub Category
ZMDB-653H-E+	MDB-653H-DG+	20000	65000	DC	20000	11	45	30	Double Balanced Mixer
ZMIQ-653H-E+	SMIQ-653H-DG+	18000	65000	DC	20000	14	42	33	IQ Mixer
ZMDB-44H-K+	MDB-44H+	10000	40000	DC	15000	8.8	35	30	Double Balanced Mixer
ZMIQ-44H-K+	SMIQ-1844H+	18000	40000	DC	7000	10	42	40	IQ Mixer
ZMIQ-34H-K+	SMIQ-134H+	10000	30000	DC	7000	9.2	37	40	IQ Mixer
ZMIQ-243H-K+	SMIQ-6243H+	6000	24000	DC	6000	9.5	38	38	IQ Mixer
ZMDB-24H-K+	MDB-24H+	5000	21000	DC	5000	8.5	30	40	Double Balanced Mixer
ZMIQ-143H-S+	SMIQ-5143H+	5000	14000	DC	3000	8.5	40	42	IQ Mixer

Multipliers

Connectorized Module	MMIC	Multiply Factor [X]	Input Freq. Low (MHz)	Input Freq. High (MHz)	Output Freq. Low (MHz)	Output Freq. High (MHz)	RF Input Power (dBm) Min.	RF Input Power (dBm) Max.	Conv. Loss (dB) Typ.	F1 Fundamental Suppression Below F[X] (dBc) Typ.	F[X-1] Suppression Below F[X] (dBc) Typ.	F[X+1] Suppression Below F[X] (dBc) Typ.
ZXF90-3-723-E+	CY3-723-DG+	3	13330	24000	40000	72000	14	20	23	38	35	35
ZXF90-2-44-K+	CY2-44+	2	6200	20000	12400	40000	12	18	15	25	-	28
ZXF90-3-64-E+	CY3-64-DG+	3	10000	20000	30000	60000	12	19	21	35	40	40
ZXF90-3-453-V+	CY3-453-DG+	3	6660	15000	20000	45000	12	18	20	47	40	39
ZXF90-3-443-K+	CY3-453-DG+	3	6660	14500	20000	43500	12	18	20	47	40	39
ZX90-2-24-S+	KSX2-24+	2	5000	10000	10000	20000	11	16	12	30	-	30
ZXF90-2-153-K+	CY2-143-DG+	2	4500	7500	9000	15000	16	22	15	48	42	23
ZXF90-3-223-K+	CY3-223-DG+	3	3330	7330	10000	22000	12	18	17	55	50	35
ZX90-2-50-S+	KC2-50+	2	3500	5000	7000	10000	7	12	12.5	15	-	28
ZX90-2-36-S+	KC2-36+	2	1700	3600	3400	7200	8	13	11	28	-	32
ZX90-3-812-S+	RMK-3-812+T1	3	2000	2700	6000	8100	0	5	15	30	48	48
ZX90-3-692-S+	RMK-3-662+	3	1700	2300	5100	6900	9	13	14.7	40	40	40
ZX90-2-19-S+	KC2-19+	2	1100	1900	2200	3800	5	10	10.5	27	-	30
ZX90-3-452-S+	AMK-3-452+	3	1000	1500	3000	4500	10	16	14.7	40	55	55
ZX90-2-11-S+	KC2-11+	2	500	1100	1000	2200	5	10	10.5	27	-	34
ZX90-2-13-S+	AMK-2-13+	2	10	500	20	1000	4	10	11	45	-	45
ZX90-3-122-S+	RMK-3-122+	3	300	400	900	1200	0	6	16	48	60	70

Equalizers

Connectorized Module	MMIC	Freq. Low (MHz)	Freq. High (MHz)	Slope (dB) Typ.	Insertion Loss @ Freq. High (dB)
ZEQ-3-44K+	EQY-3-453+	DC	40000	3.1	1.7
ZEQ-4-44K+	EQY-4-453+	DC	40000	3.6	2.3
ZEQ-5-44K+	EQY-5-453+	DC	40000	4.7	2.1
ZEQ-6-44K+	EQY-6-453+	DC	40000	6	1.7
ZEQ-7-44K+	EQY-7-453+	DC	40000	6.5	2.3
ZEQ-8-44K+	EQY-8-453+	DC	40000	7.4	2.2
ZEQ-9-44K+	EQY-9-453+	DC	40000	8.4	2.4
ZEQ-10-44K+	EQY-10-453+	DC	40000	9.4	2.7
ZEQ-2-24K+	EQY-3-24+	DC	20000	2.4	1.6
ZEQ-4-24K+	EQY-5-24+	DC	20000	4.2	1.7
ZEQ-5-24K+	EQY-6-24+	DC	20000	5.3	1.65
ZEQ-7-24K+	EQY-8-24+	DC	20000	7.4	1.75
ZEQ-9-24K+	EQY-10-24+	DC	20000	9.2	2.1
ZEQ-11-24K+	EQY-12-24+	DC	20000	10.8	2.6