

DIGITAL STEP ATTENUATORS

50Ω

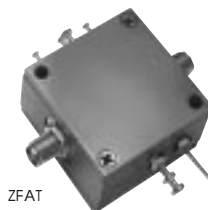
Precision

Mini-Circuits®

TTL CONTROL, PIN DIODE 10 MHz to 1 GHz



TOAT



ZFAT



ZSAT

MODEL NO.	FREQUENCY MHz		PRIMARY ATTENUATION STEPS dB			ATTENUATION dB LOGIC STATE*		VSWR (:1)			CASE STYLE	CONNECTION	PRICE \$
	f _L	f _U	@TTL CONTROL PORT			(1,1,1)** Nom.	(0,0,0) Max.	L	M	U	Note B		Qty. (1-9)
			#1	#2	#3								
TOAT-R512	10	1000	0.5±0.18	1±0.25	2±0.25	3.5	4.0	1.6	1.4	1.5	QQ96	cq	59.95
TOAT-124	10	1000	1±0.25	2±0.25	4±0.3	7.0	4.0	1.6	1.4	1.5	QQ96	cq	59.95
TOAT-3610	10	1000	3±0.3	6±0.4	10±0.4	19.0	4.0	1.6	1.4	1.5	QQ96	cq	59.95
TOAT-4816	10	1000	4±0.4	8±0.4	16±0.5	28.0	4.0	1.6	1.4	1.5	QQ96	cq	59.95
TOAT-51020	10	1000	5±0.4	10±0.4	20±0.5	35.0	4.0	1.6	1.4	1.5	QQ96	cq	59.95
ZFAT-R512	10	1000	0.5±0.18	1±0.25	2±0.25	3.5	4.0	1.6	1.4	1.5	SSS173	-	89.95
ZFAT-124	10	1000	1±0.25	2±0.25	4±0.3	7.0	4.0	1.6	1.4	1.5	SSS173	-	89.95
ZFAT-3610	10	1000	3±0.3	6±0.4	10±0.4	19.0	4.0	1.6	1.4	1.5	SSS173	-	89.95
ZFAT-4816	10	1000	4±0.4	8±0.4	16±0.5	28.0	4.0	1.6	1.4	1.5	SSS173	-	89.95
ZFAT-51020	10	1000	5±0.4	10±0.4	20±0.5	35.0	4.0	1.6	1.4	1.5	SSS173	-	89.95
SIX CONTROL PORTS													
ZSAT-31R5	10	1000	(1) 0.5±0.18 (4) 4±0.3	(2) 1±0.25 (5) 8±0.4	(3) 2±0.25 (6) 16±0.5	31.5	7.0	1.7	1.5	1.6	AR214	-	119.00

L = 10 to 100 MHz

M = 100 to 500 MHz

U = 500 to 1000 MHz

features

- wide frequency band, 10-1000 MHz
- excellent step accuracy, 0.2 dB typ.
- excellent VSWR, 1.3 typ.
- low DC current, 6 mA typ.
- operates over -55° to 100 °C
- small case, 0.6" dia., TO-8

ADDITIONAL SPECIFICATIONS

DC Voltage +5V
DC current 12mA max.
Switching Time (50% TTL to within specified accuracy of the next-selected attenuation step, and to within 0.1 dB of steady-state Thru-Loss) 10 μs typ., 15μs max.
TTL input High Threshold 2V min.
TTL input Low Threshold 0.8V max.
TTL Toggle Rate: 50 kHz typ.
1dB compression: 0 dBm (10-100MHz)
+10dBm (100-1000MHz)
For ZSAT-31R5:
1dB compression: +10 dBm (10-100 MHz)
+15 dBm (100-1000 MHz)

Logic function:

TTL High activates associated in-line attenuation
TTL Low bypasses this attenuation

NSN GUIDE

MCL NO.	NSN
TOAT-124	5985-01-416-9021
TOAT-51020	5985-01-416-9020

pin connections

see case style outline drawing

PORT	cq
RF IN	4
RF OUT	11
TTL CONTROL #1	2
TTL CONTROL #2	3
TTL CONTROL #3	1
+5V DC	12
CASE GND	5,6,7,8,9,10

NOTES:

- * For ZSAT-31R5: Total attenuation (1,1,1,1,1,1)
Thru-Loss (0,0,0,0,0,0)
- ** Total attenuation above thru-loss.
- General Quality Control Procedures, Environmental Specifications, Hi-Rel and MIL description are given in section 0, see "Mini-Circuits Guarantees Quality" article.
 - Connector types and case mounted options, case finishes are given in section 0, see "Case Styles & Outline Drawings".
 - Prices and Specifications subject to change without notice.
 - Absolute maximum power, voltage and current rating:
 - Input power, 15 dBm
 - DC voltage, 5.5 Volts
 - TTL, 5.5 Volts
 - Storage temperature -55°C to +125°C for TOAT models.
 - Step accuracy is specified for basic steps. For combination of steps accuracy is additive.
 - Thru-loss is minimum insertion loss with all attenuation elements bypassed (All TTL controls state are Low).
 - For optimum operation of TOAT models, ensure the device case is properly connected to the ground plane (of PC board).



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