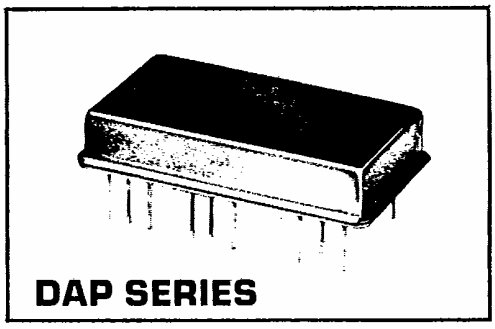
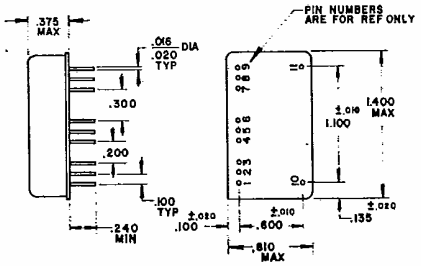
THICK FILM DIGITAL attenuators
DIODE OR RELAY SWITCHED • HERMETICALLY SEALED

T-71-11-01

The "DAP" Series or digital attenuators utilize thick film techniques to achieve a high level of performance and reliability. Thick film Distributed Attenuators and circuit patterns are fired directly onto an alumina substrate at temperatures in excess of 800° C. Pin diodes are bonded to the substrate with blocking capacitors and RF chokes to form an integrated circuit. Laser trimming of each attenuator element assure precision accuracies.



DAP SERIES



HERMETIC PACKAGE

GENERAL SPECIFICATIONS

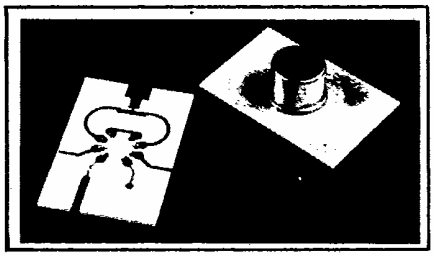
Attenuation:	0-42dB in 6dB steps
Characteristic Impedance:	50 Ω nominal
Maximum RF Power:	+20 dBm
Switching Time:	1 MS maximum
RF To Control Isolation:	60 dB minimum
Operating Temperature Range:	-54° C to +85° C
Control Input:	Positive Logic equals zero attenuation
DC Control Signal:	1 VDC @ 10ma per BIT
Material:	Gold Plated Kovar
Leads:	Pretinned

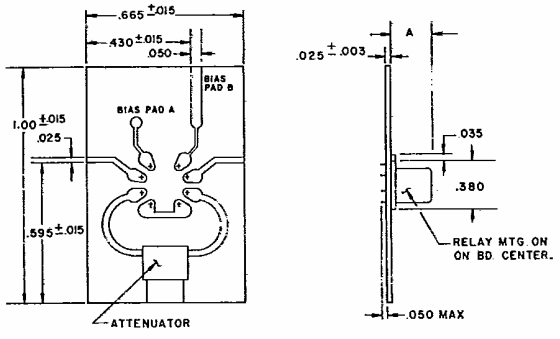
P/N	Freq. Range	Atten. Step dB	Accuracy	Max. VSWR	Max. Insertion Loss
DAP1023	900-1200 MHz 24dB ± 1 dB	6, 12, 24	6dB ± .5 dB 12dB ± 1 dB	1.5:1	4.0 dB

NOTE: Other attenuation step sizes are available. Consult Factory.

RELAY CELL attenuator
THICK FILM

The "DAR" Series thick film attenuator cells are designed to be used with "add-on" microwave relays. Thick film Distributed Attenuators and circuit patterns are fired directly onto an alumina substrate at temperatures in excess of 800° C. Laser trimming of each attenuator element assure precision accuracies.





DAR SERIES

GENERAL SPECIFICATIONS

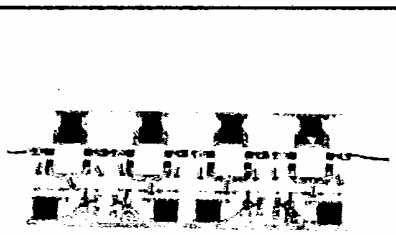
Attenuation:	0-20dB in 1dB steps
Characteristic Impedance:	50 Ω nominal
Maximum RF Power:	+20 dBm
Switching Time:	1 MS maximum
RF To Control Isolation:	60 dB minimum
Operating Temperature Range:	-54° C to +85° C
Control Input:	Positive Logic equals zero attenuation
DC Control Signal:	1 VDC @ 10ma per BIT
Frequency Range:	DC-2 GHz
VSWR:	1.5:1 max.
Insertion Loss:	.75 dB max. per cell
Accuracy	±0.2 dB, 1-6 dB; ±.25 dB, 7-10 dB ±.5 dB, 11-20 dB

NOTE 1: Relay Cell Attenuators are available for various relay schematics; Consult factory for details.
2: Relay Cell Attenuators are available with "On Board" TTL Driver Circuits.
3: Special patterns of multiple cells on a single substrate are also available.

KDI ELECTRONICS, INC.
Pyrofilm & Engelmann Divisions
60 South Jefferson Road, Whippany, N.J. 07981 · TEL (201) 887-8100 · TWX (710) 986-8220 · FAX (201) 887-4645

THICK FILM DIGITAL attenuators
SURFACE MOUNT/PLUG IN

The "DAC" Series of digital attenuators are thick film Microwave Integrated Circuits. Attenuator elements and conductor patterns are fired directly onto the alumina substrate. The attenuator pads are calibrated by laser techniques. PIN diodes, blocking capacitors and RF chokes are attached to the ceramic substrate.



DAC SERIES

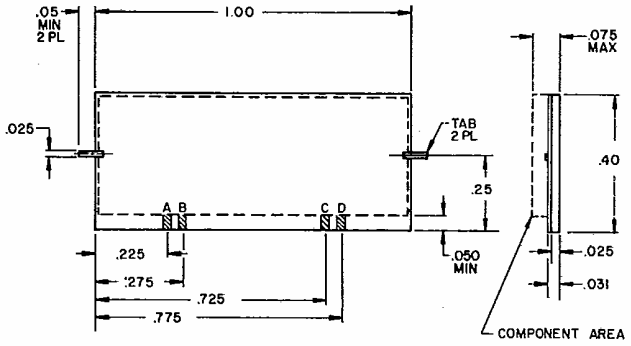
GENERAL SPECIFICATIONS

Characteristic Impedance:	50 Ω nominal
Maximum RF Power:	1.00 mw max.
Switching Time:	200 ns maximum
RF To Control Isolation:	60 dB maximum
Operating Temperature Range:	-55° C +125° C
Logic Input:	See performance table

MECHANICAL CHARACTERISTICS

The DAC family is available with either a plastic lid, a ceramic lid or as an uncased device. All are suitable for surface mounting and have tabs and pads for external connections. To specify package options, add the following suffix codes:

P = Plastic lid
C = Ceramic lid



LOGIC INPUT

Positive logic equals zero attenuation path

Drive Current/per BIT: ± 25 ma/± 40 ma (see electrical performance table)

Maximum Compliance Voltage = ± 5V

ELECTRICAL PERFORMANCE

P/N	Frequency Range	Attenuation Per BIT (dB)	Per BIT Accuracy	Maximum VSWR	Maximum Insertion Loss	Drive Current*
DAC2534-2	.250-3.5 GHz	16, 8, 4, 2	± .75 dB	1.5:1	3.2 dB	± 40 ma
DAC2534-1	.250-3.5 GHz	8, 4, 2, 1	± .5 dB	1.5:1	3.2 dB	± 40 ma

* per BIT

KDI ELECTRONICS, INC.
Pyrofilm & Engelmann Divisions
TEL (201) 887-8100 · TWX (710) 986-8220 · FAX (201) 887-4645 · 60 South Jefferson Road, Whippany, N.J. 07981