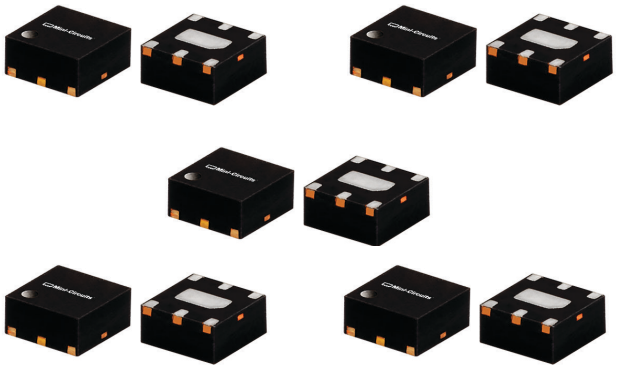
DESIGNER'S KIT K1-QAT+

Fixed Attenuators

50Ω DC to 50 GHz



FEATURES

- 2X2mm QFN Package
- Power Handling up to 2W
- Outstanding Accuracy and Flatness

MINI-CIRCUITS DESIGNER'S KITS SPEED UP THE SOLUTION

RoHS COMPLIANT

K1-QAT+ ELECTRICAL SPECIFICATIONS

(15 models, 5 of each, 75 pcs total)

Model	Frequency (GHz) f_L-f_U	Attenuation (dB) Typ.						VSWR (:1) Typ.						Input Power[1] (W) Max.
		DC-5 GHz	5-10 GHz	10-20 GHz	20-30 GHz	30-40 GHz	40-50 GHz	DC-5 GHz	5-10 GHz	10-20 GHz	20-30 GHz	30-40 GHz	40-50 GHz	
QAT-0+	DC-50	0.1	0.2	0.3	0.4	0.6	0.9	1.05	1.12	1.18	1.30	1.26	1.39	2
QAT-1+	DC-50	1.0	1.1	1.1	1.3	1.5	1.8	1.08	1.19	1.11	1.16	1.36	1.60	2
QAT-2+	DC-50	2.0	2.1	2.1	2.2	2.3	2.4	1.08	1.18	1.11	1.17	1.28	1.55	2
QAT-3+	DC-50	3.0	3.1	3.1	3.3	3.1	3.0	1.15	1.16	1.17	1.21	1.22	1.37	2
QAT-4+	DC-50	4.0	4.1	4.0	4.1	4.0	3.9	1.13	1.19	1.11	1.16	1.25	1.37	1.7
QAT-5+	DC-50	5.0	5.1	5.1	5.1	5.2	5.4	1.07	1.12	1.08	1.12	1.25	1.40	1.4
QAT-6+	DC-50	6.0	6.1	6.1	6.1	6.2	6.4	1.08	1.18	1.09	1.14	1.29	1.49	1.6
QAT-7+	DC-50	7.0	7.1	7.2	7.2	7.4	7.5	1.07	1.11	1.08	1.15	1.29	1.48	1.3
QAT-8+	DC-50	8.0	8.1	8.1	8.2	8.4	8.6	1.09	1.16	1.08	1.16	1.27	1.48	1.2
QAT-9+	DC-50	9.0	9.1	9.2	9.3	9.4	9.7	1.12	1.14	1.09	1.19	1.32	1.58	1.1
QAT-10+	DC-50	10.1	10.2	10.2	10.3	10.2	10.3	1.13	1.13	1.10	1.20	1.29	1.46	1.7
QAT-12+	DC-50	12.0	12.1	12.2	12.3	12.4	12.5	1.13	1.15	1.09	1.19	1.31	1.50	1.1
QAT-15+	DC-50	15.0	15.1	15.1	15.0	14.9	14.6	1.16	1.20	1.08	1.20	1.27	1.34	1.4
QAT-20+	DC-50	20.1	20.2	20.2	20.2	20.0	19.4	1.12	1.18	1.09	1.16	1.23	1.34	0.8
QAT-30+	DC-50	30.0	30.3	30.6	31.1	31.1	30.6	1.24	1.23	1.10	1.21	1.36	1.52	1

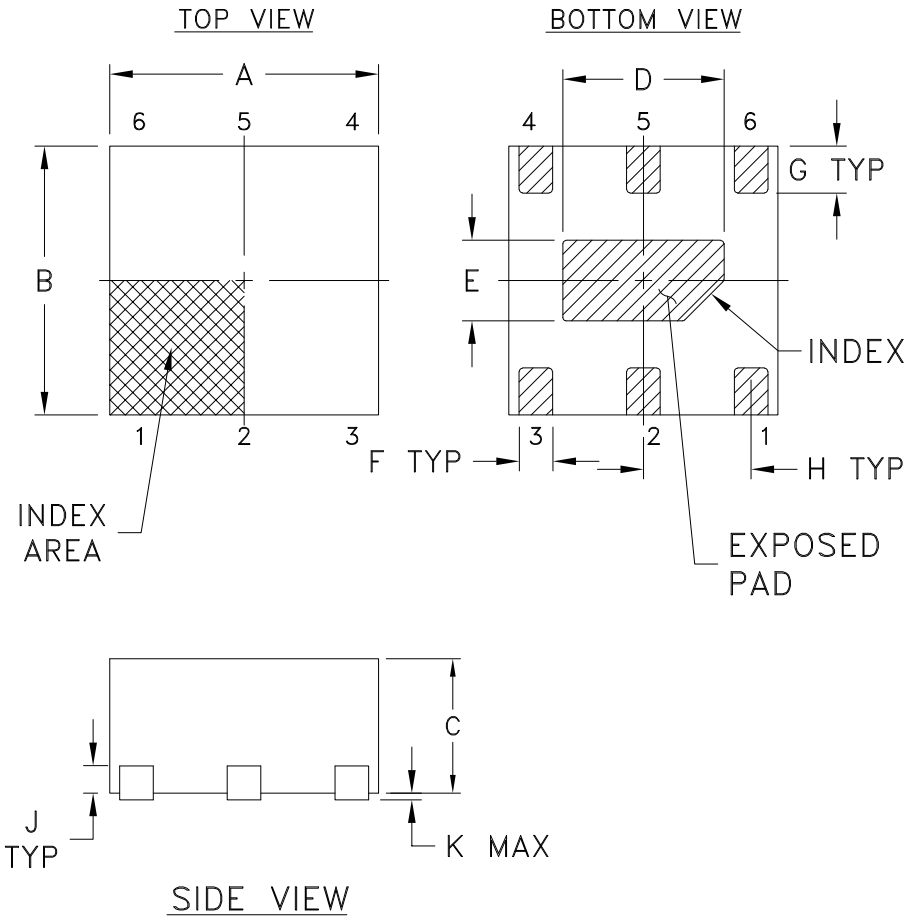
1. RF Power at 25°C case temperature. Check Individual Model Data Sheet for derated power at 85°C and 105°C

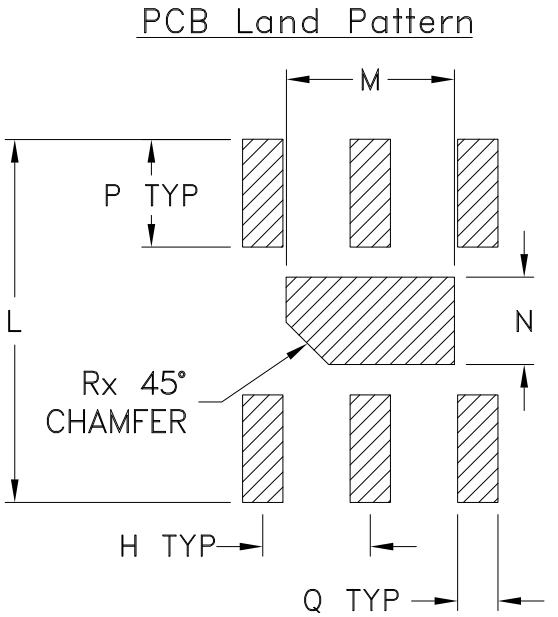
REV. A
ECO-007355
K1-QAT+
MCL NY
210514

Case Style MC

Outline Dimensions

MC3000





Suggested Layout,
Tolerance to be within ±.002

DENOTES METALLIZATION

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
MC3000	.079 (2.00)	.079 (2.00)	.039 (1.00)	.047 (1.20)	.024 (.60)	.010 (.25)	.014 (.35)	.031 (.80)	.008 (.20)	.002 (.05)	.106 (2.70)	.049 (1.25)	.026 (.65)

CASE #	P	Q	R	WT, GRAM
MC3000	.031 (.80)	.012 (.30)	.012 (.30)	.006

Dimensions are in inches (mm). Tolerances: 2 Pl.±.01; 3 Pl. ±.005

Notes:

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin-Silver over Nickel plated or Matte-Tin plated (See Data sheet).
   All models, (+) suffix.
3. Lead #1 identifier shall be located in the cross-hatched area shown.
   Identifier may be either a molded or marked feature.

Mini-Circuits

Environmental Specifications ENV08T1

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85° C or -45° to 85° C or -55° to 105° C or -40° to 105° C or -40° to 95° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C or -65° to 150° Ambient Environment	Individual Model Data Sheet
HTOL	1000 hours at 125°C	MIL-STD-883, Method 1005, Condition B
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Mechanical Shock	1.5Kg, 0.5 ms, 5 shock pulses, Y1 direction only	MIL-STD-883, Method 2002, Condition B, except Y1 direction only
Vibration (Variable Frequency)	50g peak	MIL-STD-883, Method 2007, Condition B
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102, Condition C
HAST	130°C, 85% RH, 96 hours	JESD22-A110
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Solder Reflow Heat	Sn-Pb Eutetic Process: 240°C peak Pb-Free Process: 260°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Moisture Sensitivity: Level 1	Bake at 125°C for 24 hours Soak at 85°C/85% RH for 168 hours, Reflow 3 cycles at 260°C peak	J-STD-020

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215