

# FERRITE CIRCULATORS AND ISOLATORS

869-1990 MHz

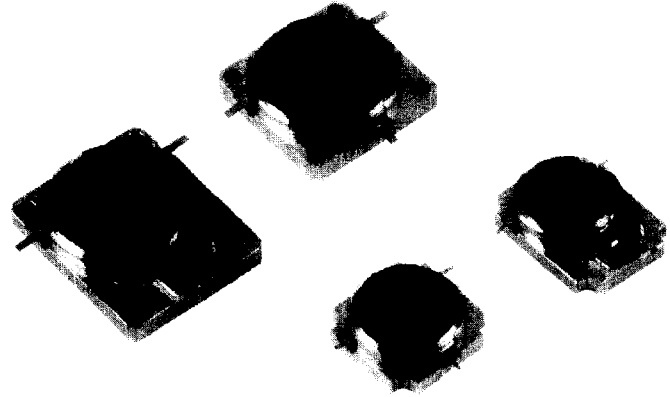
# SERIES FEC/FEI

LOW PROFILE

## GENERAL INFORMATION

The "FEC" and "FEI" series offer drop-in or surface mount isolators and circulators that will accommodate most cellular and PCS applications. Our low profile, side magnet design offers a compact package with excellent isolation versus insertion loss characteristics.

KDI has taken advantage of its many years of experience to custom design a termination which creates a more perfect third port match to maximize the performance and efficiency of our isolators. This new technology, utilized in conjunction with our existing process controls, enables KDI to produce a consistently superior product with excellent unit to unit repeatability and phase consistency (typically  $\pm 5$  degrees where specified).



## FEATURES

- High isolation versus insertion loss characteristics
- Custom designs in narrow-band frequency ranges from 400 to 4000 MHz
- Excellent repeatability and unit to unit phase consistency
- Stable over wide temperature extremes
- Commercial, military or space level requirements
- Precision test fixturing available
- High volume manufacturing facility
- Excellent affordability
- Custom tuned KDI terminations
- Full qualification facilities on premises
- Integration with other KDI products available

## TYPICAL SPECIFICATIONS

<b>Frequency (Narrow Bands):</b>	869-1990 MHz
<b>Insertion Loss:</b>	0.3 dB Maximum
<b>Isolation:</b>	22 dB Minimum
<b>VSWR</b>	1.20:1 Maximum
<b>Power Handling:</b>	< 1 Watt to 100 Watts
<b>Temperature:</b>	Operating: -10 to +85 (degrees C) Storage: +125°C Maximum
<b>Impedance:</b>	50 Ohms
<b>Package Type:</b>	Drop-in
<b>Materials:</b>	Housing Material: Aluminum Alloy type 6061-T651 Per QQ-A-250/11
<b>Finish:</b>	<b>FEI Series:</b> Electroless Nickel Per MIL-C-26074 Class 1, Grade B .0005/.0007 THK <b>FEC Series:</b> Chemical Film Per MIL-C-5541 Class 3 Input/Output Tabs (All Types) Material: Beryllium Copper Finish: Gold Plate Per MIL-G-45204 Type 1, Grade A, Class 1 (50-100 Microinches)

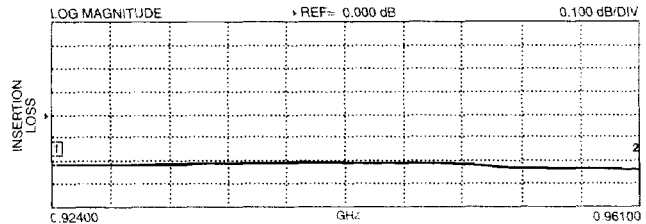
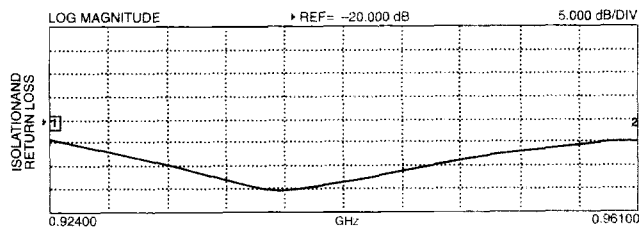
### CELLULAR BANDS

Model No.	Frequency (MHz)	Type/Style CIRC/SO	Power Avg.	Power Peak	Outline	Test Fixture* Model No.
FEC-AMPS-100	869-894	CIRCULATOR	100	500	A	TFC-002
FEI-AMPS-5	869-894	ISOLATOR	5	100	C	TFI-008
FEI-AMPS-75	869-894	ISOLATOR	75	400	B	TFI-008
FEC-GSM-100	925-960	CIRCULATOR	100	500	A	TFC-002
FEI-GSM-5	925-960	ISOLATOR	5	100	C	TFI-008
FEI-GSM-75	925-960	ISOLATOR	75	400	B	TFI-008

### PCN/PCS BANDS

FEC-DCS-100	1805-1880	CIRCULATOR	100	500	D	TFC-001
FEI-DCS-5	1805-1880	ISOLATOR	5	100	G	TFI-004
FEI-DCS-15	1805-1880	ISOLATOR	15	100	F	TFI-005
FEI-DCS-75	1805-1880	ISOLATOR	75	400	E	TFI-006
FEC-PCS-100	1930-1990	CIRCULATOR	100	500	D	TFC-001
FEI-PCS-5	1930-1990	ISOLATOR	5	100	G	TFI-004
FEI-PCS-15	1930-1990	ISOLATOR	15	100	F	TFI-005
FEI-PCS-75	1930-1990	ISOLATOR	75	400	E	TFI-006

\*Supplied as a "set" including a transmission through-line fixture.



**KDI/TRIANGLE CORPORATION**  
An MCE Company

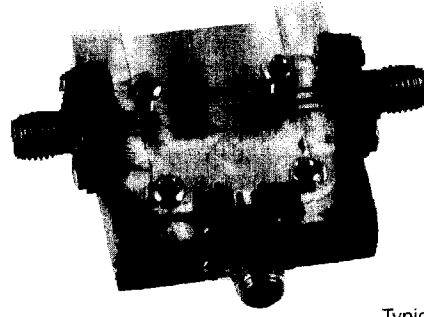
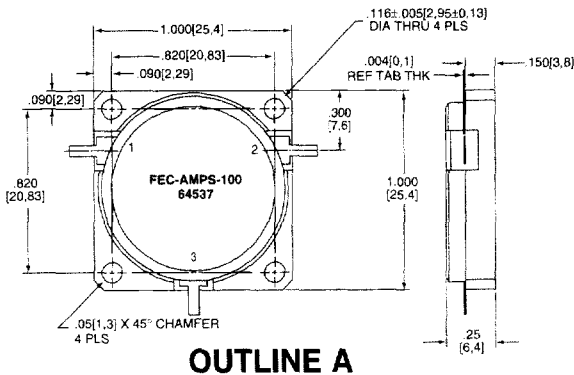
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# CIRCULATORS AND ISOLATORS

# SERIES FEC/FEI

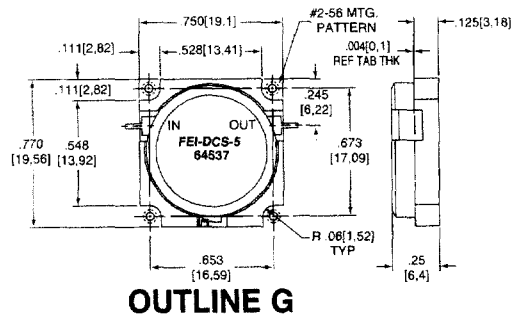
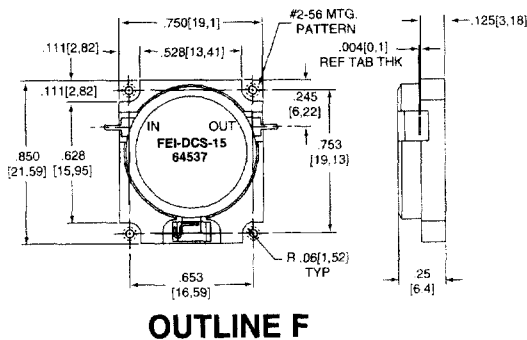
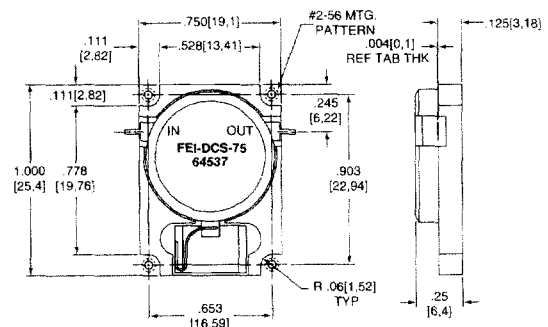
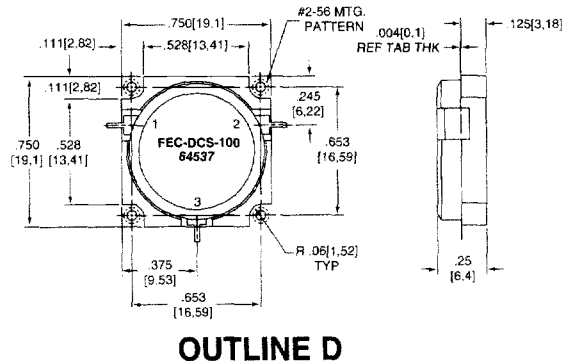
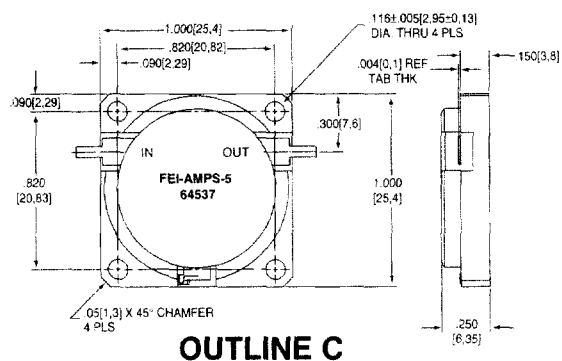
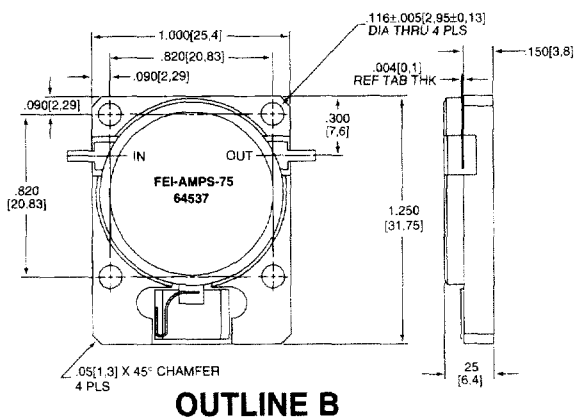
869-1990 MHz



Typical Test Fixture

## TAB DIMENSION

SERIES	WIDTH in[mm]	LENGTH in[mm]
PCS/DCS	.025[0.64]	.075[1.9]
AMPS/GSM	.055[1.40]	.125[3.18]



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# SERIES FEC/FEI

0.85-13.35 GHz

## ELECTRICAL SPECIFICATIONS

### DUAL JUNCTION CIRCULATOR

<b>Model</b>	FE-A20
<b>Frequency:</b>	851-866 MHz
<b>3rd Order Inmod:</b>	-70 dBc
<b>Isolation:</b>	60 dB Minimum (30/Junction)
<b>Insertion Loss:</b>	0.4 dB Maximum (.2/Junction)
<b>VSWR:</b>	1.15:1 Maximum
<b>Temp:</b>	-30° To +50°C Operating -54° To +125°C Storage
<b>Power:</b>	300 Watts Average

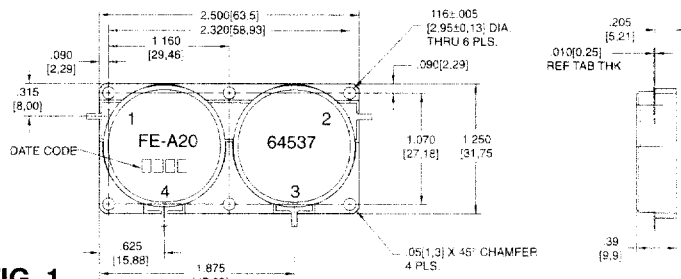


FIG. 1

## ELECTRICAL SPECIFICATIONS

### HIGH POWER CIRCULATOR

<b>Model</b>	FE-B36
<b>Frequency:</b>	1.2-1.4 GHz
<b>Impedance:</b>	50 OHM Nominal
<b>Isolation:</b>	19 dB Minimum
<b>Insertion Loss:</b>	0.5 dB Maximum
<b>VSWR:</b>	1.25:1 Maximum
<b>Temp:</b>	-10° To +85°C
<b>Power:</b>	100 Watts Average 1 Kw Peak

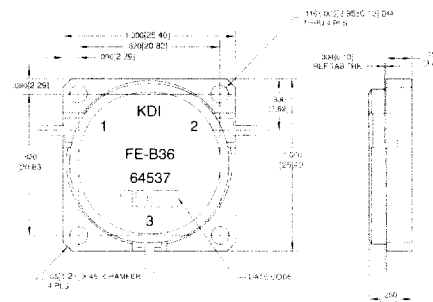


FIG. 2

## ELECTRICAL SPECIFICATIONS

### HIGH POWER ISOLATOR

<b>Model</b>	FE-B37
<b>Frequency:</b>	1.626-1.660 GHz
<b>Isolation:</b>	20 dB Minimum
<b>Insertion Loss:</b>	0.4 dB Maximum
<b>VSWR:</b>	1.20:1 Maximum
<b>Temp:</b>	-40° To +70°C Operating -40° To +85°C Storage
<b>Power:</b>	50 Watts Average

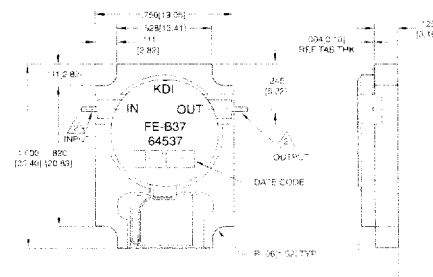


FIG. 3

## ELECTRICAL SPECIFICATIONS

### LOW POWER ISOLATOR

<b>Model</b>	FE-A06
<b>Frequency:</b>	1.85-1.99 GHz
<b>Isolation:</b>	20 dB Minimum
<b>Insertion Loss:</b>	0.4 dB Typ. 0.5 dB Maximum
<b>VSWR:</b>	1.25:1 Maximum
<b>Temp:</b>	-10° To +85°C Operating -40° To +125°C Storage
<b>Power:</b>	2 Watts Average

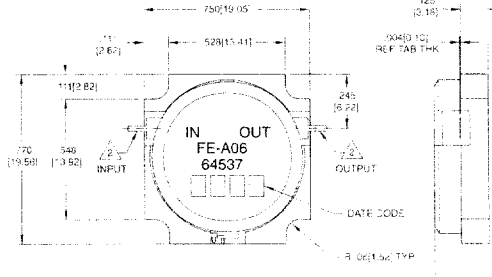


FIG. 4

## ELECTRICAL SPECIFICATIONS

### DUAL JUNCTION CIRCULATOR

<b>Model</b>	FE-A19
<b>Frequency:</b>	2.4-2.484 MHz
<b>Isolation:</b>	20 dB Minimum
<b>Insertion Loss:</b>	0.3 dB TYP 0.5 db Maximum
<b>VSWR:</b>	1.20:1 Maximum
<b>Temp:</b>	-30° To +85°C Operating -40° To 125°C Storage
<b>Power:</b>	5 Watts Average 3 Watts Reflected

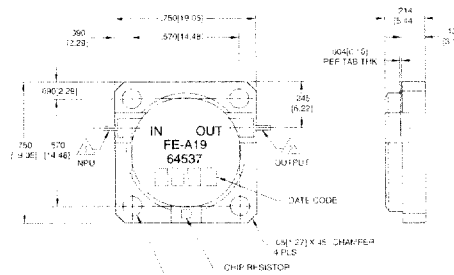


FIG. 5

REV. 1.0 (1/90) FE-A06, FE-A19, FE-B36, FE-B37



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0.85–13.35 GHz

## ELECTRICAL SPECIFICATIONS

### LOW POWER ISOLATOR

Model	FE-B38
Frequency:	2.8-3.0 MHz
Isolation:	20 dB Minimum
Insertion Loss:	0.3 dB Goal 0.4 dB Maximum
VSWR:	1.20:1 Maximum
Temp:	-10° To +85°C Operating
Power:	5 Watts Average 500 Watts Peak

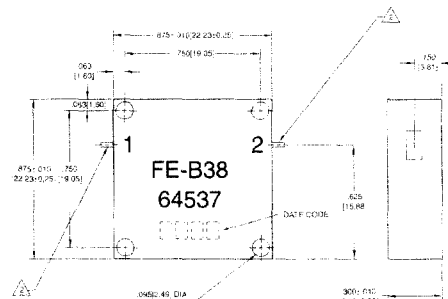


FIG. 6

## ELECTRICAL SPECIFICATIONS

### LOW POWER ISOLATOR

Model	FE-B39
Frequency:	3.4-3.6 GHz
Isolation:	20 dB Minimum
Insertion Loss:	0.3 dB Maximum
VSWR:	1.20:1 Maximum
Temp:	-10° To +80°C
Power:	1 Watts Average

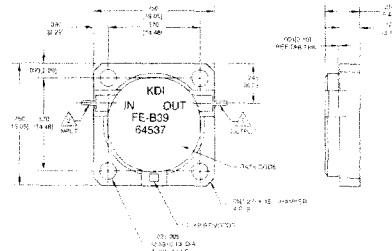


FIG. 7

## ELECTRICAL SPECIFICATIONS

### HIGH POWER ISOLATOR

Model	FE-B40
Frequency:	3.4-3.6 GHz
Isolation:	20 dB Minimum
Insertion Loss:	0.3 dB Maximum
VSWR:	1.20:1 Maximum
Temp:	-10° To +80°C Operating
Power:	75 Watts Average

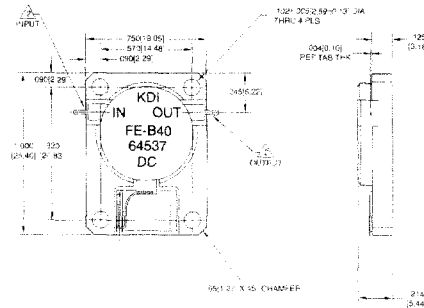


FIG. 8

## ELECTRICAL SPECIFICATIONS

### LOW POWER ISOLATOR

Model	FE-A16
Frequency:	2.70-3.00 GHz
Isolation:	20 dB Minimum
Insertion Loss:	0.4 dB Maximum
VSWR:	1.25:1 Maximum
Temp:	-20° To +55°C Operating -25° To +75°C Storage
Power:	1 Watt Average

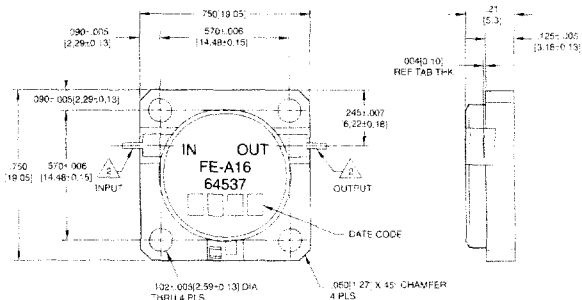


FIG. 9

## ELECTRICAL SPECIFICATIONS

### KU BAND CIRCULATOR

Model	FE-A09
Frequency:	13.3-13.35 GHz
Impedance:	50 OHM Nominal
Isolation:	20 dB Minimum
Insertion Loss:	0.4 dB Maximum
VSWR:	1.15:1 Maximum
Temp:	-57° To +71°C Operating -62° To +85°C Storage
Power:	2 Watts Average

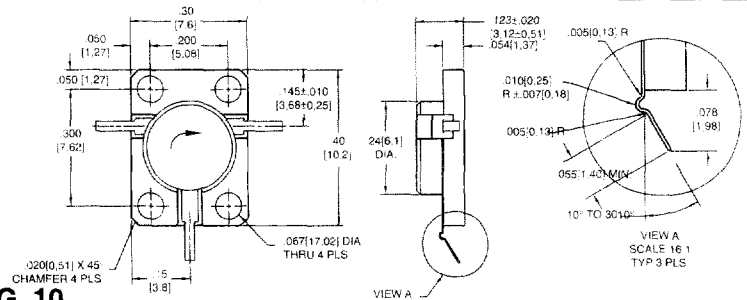


FIG. 10



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