

**GENERAL DESCRIPTION**

The UMIL70 is a double input matched broadband transistor specifically intended for use in the 225-400MHz frequency band. It may be operated in Class A, AB or C. Gold metallization and silicon diffused resistors ensure ruggedness and high reliability. The UMIL70 is an improved drop-in replacement for the C2M70-28.

**UMIL70**  
**70 WATTS - 28 VOLTS**  
**225-400 MHz**

**UHF COMMUNICATIONS**

**ABSOLUTE MAXIMUM RATINGS**

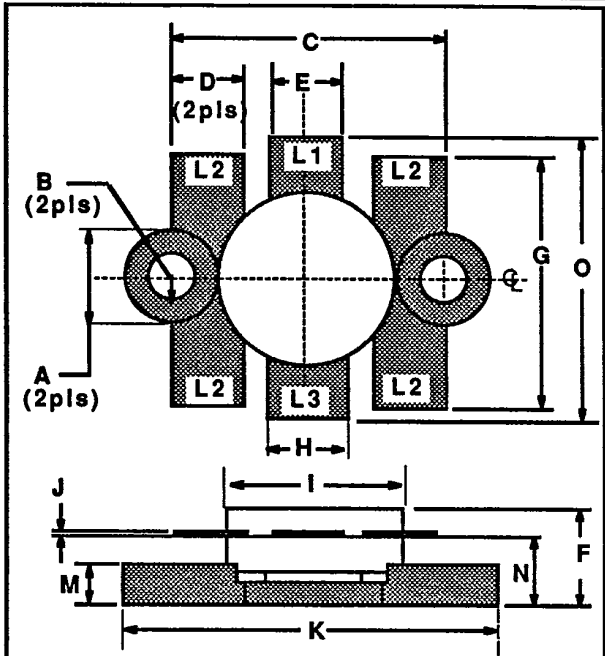
Maximum Power Dissipation @ 25°C Case Temperature 140 W

**Maximum Voltage and Current**

BVces Collector to Emitter Voltage 60V  
 BVebo Emitter to Base Voltage 4.0 V  
 Ic Collector Current 8.0 A

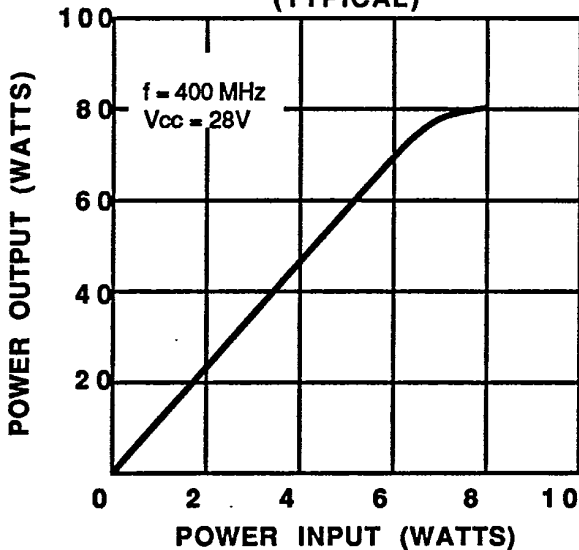
**Maximum Temperatures**

Storage Temperature -65 to +150 °C  
 Operating Junction Temperature +200 °C



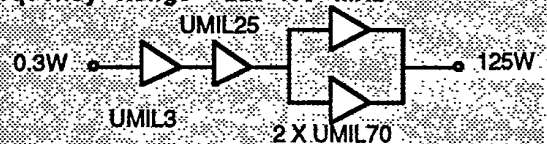
L1 : C	DIM	Millimeter	TOL	Inches	TOL
L2 : E	A	6.35 DIA	.13	.250 DIA	.005
	B	3.17 DIA	.13	.125 DIA	.005
	C	18.49	.13	.728	.005
	D	5.08	.13	.200	.005
	E	4.57	.13	.180	.005
	F	6.60	REF	.260	REF
	G	25.14	.25	.990	.010
	H	6.69	.13	.224	.005
	I	12.70 DIA	.13	.500 DIA	.005
	J	0.13	.02	.005	.001
	K	24.76	.13	.975	.005
	M	3.17	.13	.125	.005
	N	4.32	.13	.170	.005
	O	36.83	.25	1.450	.010

**POWER OUTPUT VS POWER INPUT (TYPICAL)**



**TYPICAL AMPLIFIER LINE-UP**

Vcc = 28 Volts  
 Frequency Range = 225-400 MHz



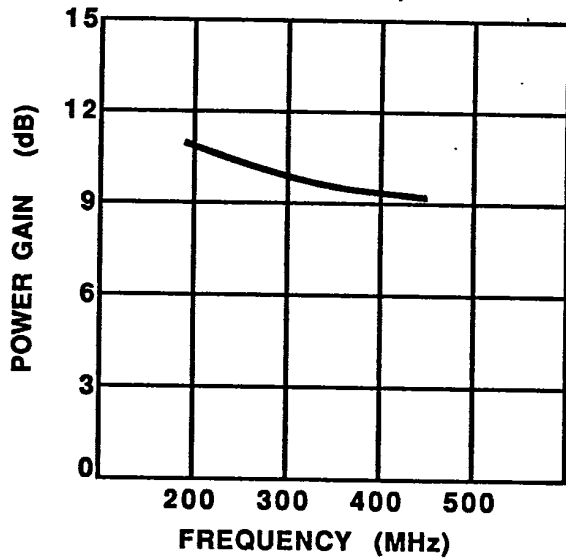
**UMIL70-2**

**ELECTRICAL CHARACTERISTICS<sup>1</sup>**

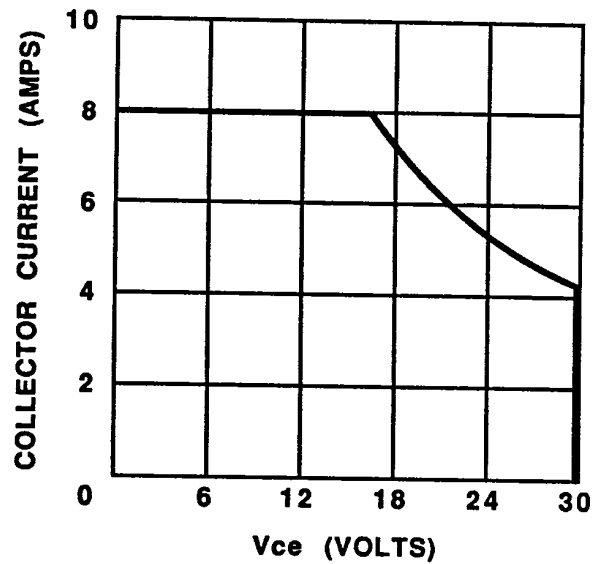
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
P <sub>out</sub>	Power Output	f = 400 MHz V <sub>cc</sub> = 28V	70			Watts
P <sub>in</sub>	Power Input				10	Watts
P <sub>g</sub>	Power Gain		8.5	10		dB
η <sub>c</sub>	Collector Efficiency		60			%
VSWR	Load Mismatch Tolerance				5:1	
BV <sub>ebo</sub>	Breakdown Voltage (Emitter to Base)	I <sub>c</sub> = 0A, I <sub>e</sub> = 5mA	4.0			Volts
BV <sub>ces</sub>	Breakdown Voltage (Collector to Emitter)	V <sub>be</sub> = 0A, I <sub>c</sub> = 50mA	60			Volts
BV <sub>ceo</sub>	Breakdown Voltage (Collector to Emitter)	I <sub>b</sub> = 0A, I <sub>c</sub> = 50mA	33			Volts
C <sub>ob</sub>	Capacitance-Collector to Base	V <sub>cb</sub> = 28V, f = 1MHz			76	pF
h <sub>FE</sub>	DC-Current Gain	I <sub>c</sub> = 2A, V <sub>ce</sub> = 5V	20			
θ <sub>jc</sub>	Thermal Resistance				1.25	°C/W

Note 1: T<sub>c</sub> = +25°C unless otherwise specified

**POWER GAIN VS FREQUENCY (TYPICAL)**



**DC SAFE OPERATING AREA (TYPICAL)**

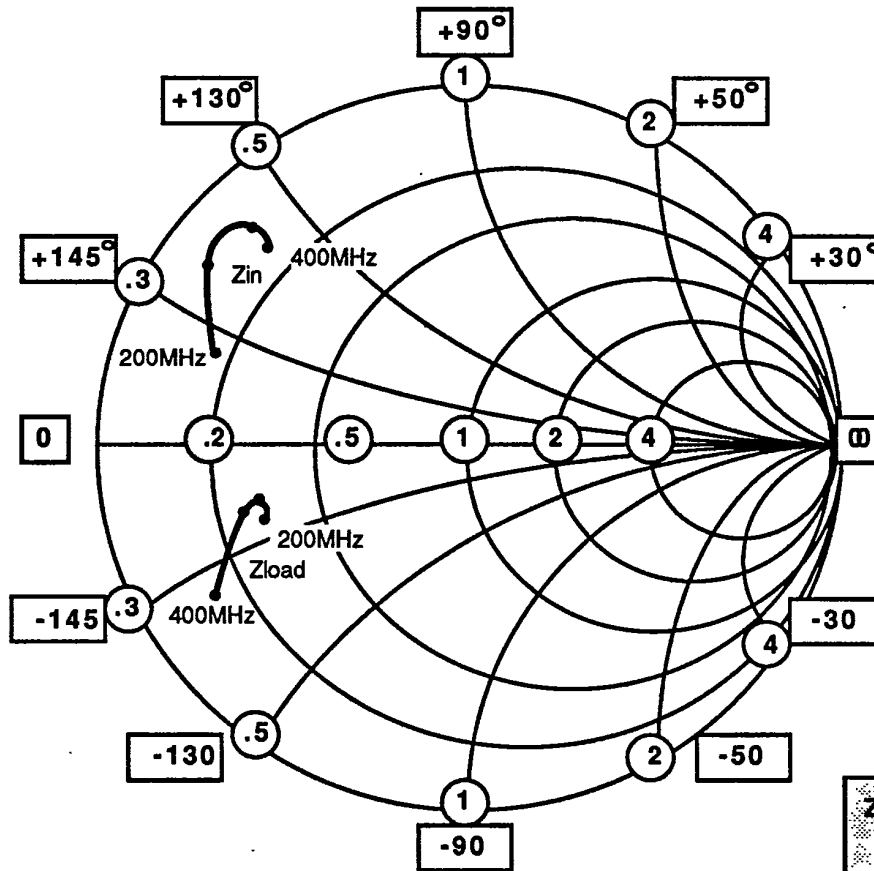


SPECIFICATIONS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE

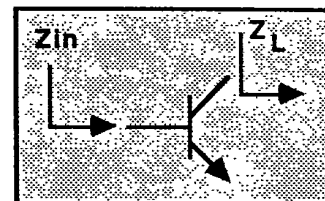
190

**SMITH CHART  
UMIL70**

**NORMALIZED IMPEDANCE AND ADMITTANCE COORDINATES**



**NORMALIZED TO A 10 OHM SYSTEM.**



FREQUENCY MHz	R	Zin JX	FREQUENCY MHz	R	Zload JX
200	1.8	+2.6	200	3.3	-2.2
250	1.1	+3.6	250	3.3	-2.0
300	1.2	+4.5	300	3.0	-2.0
400	1.3	+4.3	400	1.4	-3.5