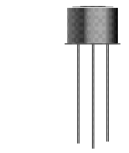
ADVANCED POWER TECHNOLOGY RF®

MS1649

RF & MICROWAVE TRANSISTORS
UHF CLASS C MOBILE APPLICATIONS



1. Collector
2. Base
3. Emitter

TO-39

Features

- **470 MHz**
- **P_{OUT} = 3W**
- **G_P = 9.5dB MINIMUM**
- **COMMON EMITTER CONFIGURATION**

DESCRIPTION:

The MS1649 is a 12.5V epitaxial NPN planar transistor designed primarily for UHF communications. This device is packaged in a grounded emitter TO-39 package for increased power gain and optimum heat dissipation.

ABSOLUTE MAXIMUM RATINGS **(Tcase = 25°C)**

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	16	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Collector Current	1.0	A
P_{TOT}	Total Power Dissipation	7.8	W
T_{STG}	Storage Temperature	-65 to +200	°C
T_J	Junction Temperature	+200	°C

Thermal Data

$R_{TH(J-C)}$	Thermal Resistance Junction-Case	35.0	°C/W

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			
			Min.	Typ.	Max.	Unit
BV_{CES}	I_C = 50mA	V_{BE} = 0	36	---	---	V
BV_{CEO}	I_C = 50mA	I_B = 0	16	---	---	V
BV_{EBO}	I_E = 1mA	I_C = 0	3.5	---	---	V
I_{CES}	V_{CB} = 12.5V	V_{BE} = 0	---	---	1.0	mA
H_{FE}	V_{CE} = 5.0V	I_C =100mA	20	---	150	---

DYNAMIC

Symbol	Test Conditions			Value			
				Min.	Typ.	Max.	Unit
G_{PE}	f = 470MHz	P_{OUT} = 3.0W	V_{CC} = 12.5V	9.5	---	---	dB
η	f = 470MHz	P_{OUT} = 3.0W	V_{CC} = 12.5V	50	---	---	%
C_{OB}	f = 1.0MHz	V_{CB} = 12.5 V		---	---	12	pf

IMPEDANCE DATA

FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
175 MHz	3.5 + j1.2	14.0 + j10.0
470 MHz	3.3 + j3.2	11.0 + j5.7

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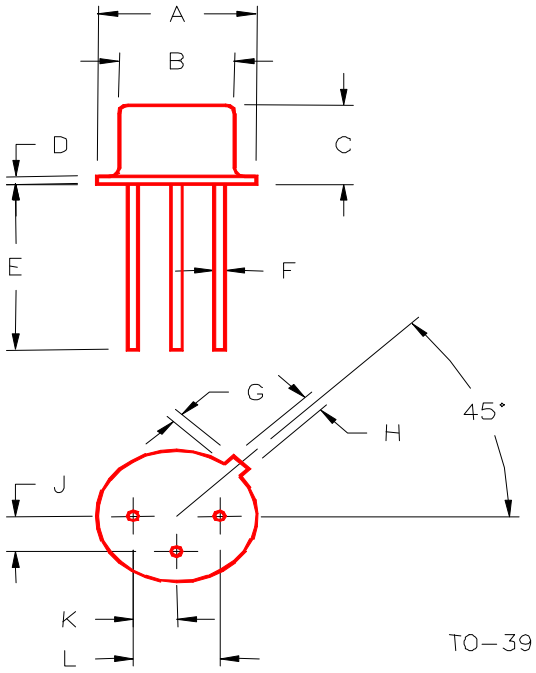
PACKAGE MECHANICAL DATA

PACKAGE STYLE M246



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.350/8,89	.370/9,40	J	.095/2,41	.105/2,67
B	.315/8,00	.335/8,51	K	.095/2,41	.105/2,67
C	.240/6,10	.260/6,60	L	.190/4,83	.210/5,33
D	.015/0,38	.045/1,14			
E	.500/12,70				
F	.016/0,41	.019/0,48			
G	.029/0,74	.040/1,02			
H	.028/0,71	.034/0,86			