RF Products
Microsemi
Progress Powered by Technology

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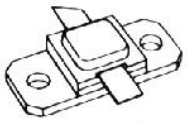
TCC2223-18

RF & MICROWAVE TRANSISTORS
MICROWAVE TELECOMMUNICATION APPLICATIONS

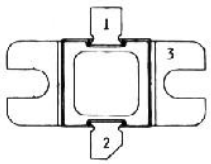
- FREQUENCY 2.2-2.3GHz
- POWER OUT 18.0W
- POWER GAIN 6.5dB
- VOLTAGE 24.0V
- HERMETIC PACKAGE
- ALL GOLD METALLIZED SYSTEM
- OVERLAY DIE GEOMETRY
- HIGH RELIABILITY AND RUGGEDNESS
- LOW THERMAL RESISTANCE
- COMMON BASE
- BROADBAND PERFORMANCE



.397 x .397 2 LFL (M147)
hermetic sealed

ORDER CODE	BRANDING
SD1870	2223-18

PIN CONNECTION



S88TCC2223-18-

1 emitter
2 collector
3 base

DESCRIPTION

The TCC2223-18 is an internally input and output matched NPN silicon transistor designed for microwave applications. The device utilizes polysilicon site ballasting with gold metalized die to achieve high reliability and ruggedness. The TCC2223-18 is a 24V device designed to provide 18W over 2.2-2.3GHz band with a minimum gain of 6.5dB. The SD1870 is branded 2223-18.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector - Base Voltage	15	V
V_{CBO}	Collector - Emitter Voltage	45	V
V_{EBO}	Emitter - Base Voltage	3.5	V
I_C	Collector Current (max.)	6.1	A
P_{tot}	Total Device Dissipation at + 25°C	58.3	W
T_{stg}	Storage Temperature	– 65 to 200	°C
T_j	Junction Temperature	200	°C

THERMAL DATA

$R_{th(j-c)}$	Junction-case Thermal Resistance	3.0	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C)

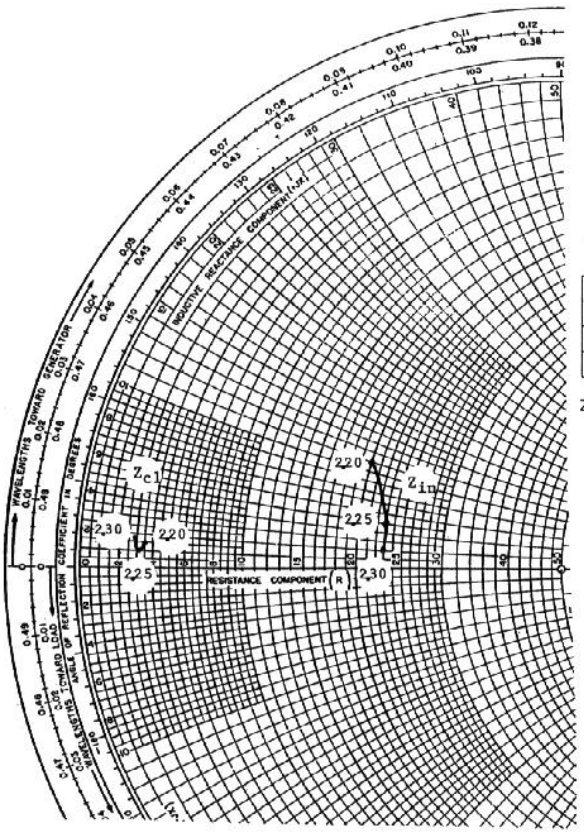
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CEO}	I_C = 8mA	I_B = 0	15			V
BV_{CBO}	I_C = 8mA	V_{BE} = 0	45			V
BV_{EBO}	I_E = 8mA	I_C = 0	3.5			V
I_{CBO}	V_{CB} = 24V	V_{BE} = 0			0.4	mA
h_{FE}	V_{CE} = 5V	I_C = .5A	15		150	

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_O	f = 2.2 – 2.3GHz	V_{CB} = 24V	P_{IN} = 4W	18			W
P_G	f = 2.2 – 2.3GHz	V_{CB} = 24V	P_{IN} = 4W	6.5			dB
ηc	f = 2.2 – 2.3GHz	V_{CB} = 24V	P_{OUT} = 18W	40			%

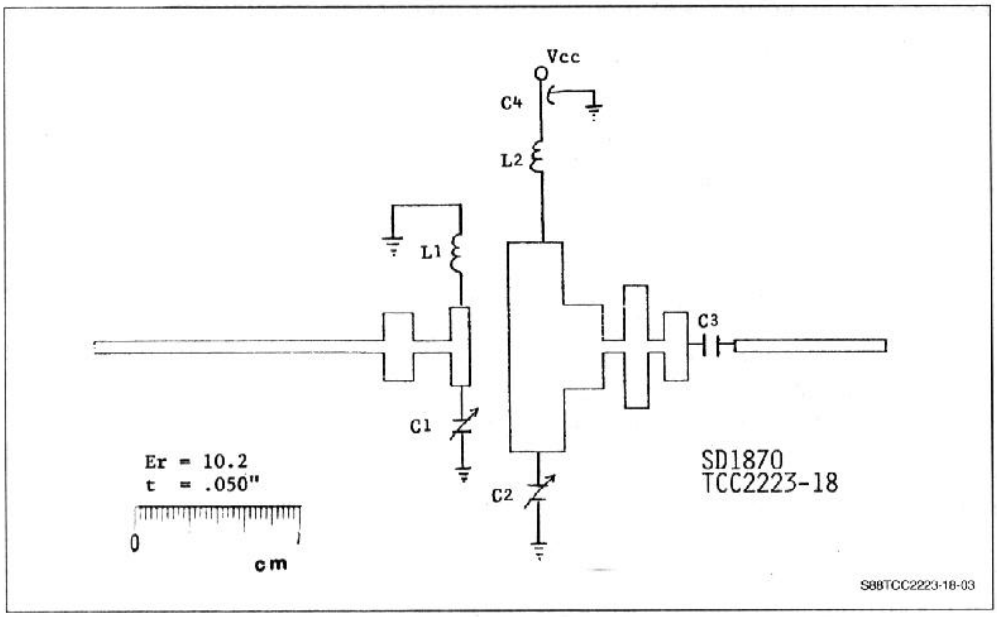
TYPICAL SERIES EQUIVALENT INPUT/OUTPUT IMPEDANCE WORKSHEET



F_{GHZ}	Z_{IN} (Ω)	Z_{CL} (Ω)
2.2	20 + j11	3.6 + j1.5
2.25	23 + j5	3.3 − j1.0
2.3	23 + j2	3.2 − j1.6

Z_{CL} = The optimum load impedance into which the transistor operates at the specified power out, voltage and frequency.

S88TCC2223-18-02

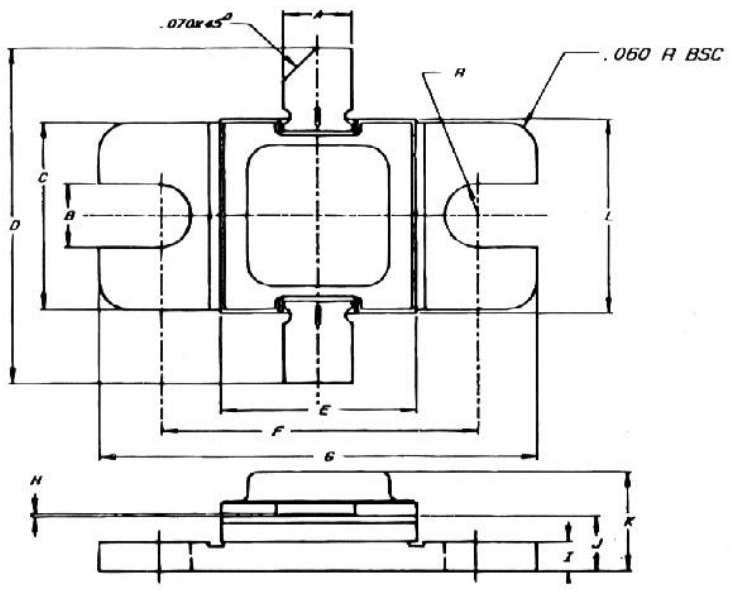


PARTS LIST

ITEM REF.	Description
L1	2 Turns # 20 Wire 100" Dia
L2	2 Turns # 20 Wire 100" Dia
C1	.4 – 2.5pF Johanson Trimmer Capacitor
C2	.4 – 2.5pF Johanson Trimmer Capacitor
C3	100pF ATC Chip Capacitor Size A
C4	15.000pF Emi Filter Capacitor (erie)
	Circuit Board Material Epsilam 10
	er = 10.2 T = .050" 1oz Copper

PACKAGE MECHANICAL DATA

.397 x .397 2LFL



S88TCC2223-18-04

	Minimum Inches/mm	Maximum Inches/mm
A	.135/3.43	.145/3.68
B	.125/3.18 BSC	
C	.380/9.65	.390/9.91
D	.885/22.48	
E	.392/9.96	.402/10.29
F	.645/16.38	.655/16.64

	Minimum Inches/mm	Maximum Inches/mm
G	.895/22.73	.905/22.99
H	.002/0.05	.006/0.15
I	.055/1.40	.065/1.65
J	.105/2.67	.125/3.18
K		.230/5.84
L	.392/9.96	.402/10.29