

**RF & MICROWAVE TRANSISTORS
CLASS A MICROWAVE**

- FREQUENCY 2.0GHz
- POWER OUT .8W
- POWER GAIN 8.0dB
- VOLTAGE 20.0V
- CURRENT 120mA
- CLASS A
- GOLD METALLIZED DIE
- OVERLAY GEOMETRY
- HERMETIC STRIPLINE PACKAGE
- COMMON EMITTER CONFIGURATION



.230 2LFL/FLM (M151)
hermetic sealed

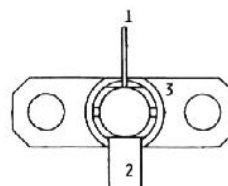
ORDER CODE
SD1851

BRANDING
20L08

DESCRIPTION

The TCC20L08 is an NPN silicon transistor designed for high gain linear performance at 2.0GHz. This part uses gold metallized die and polysilicon site ballasting to achieve high reliability and ruggedness. The part can be used for applications such as Telecommunications, Radar, ECM, Space and other commercial and military systems.

PIN CONNECTION



S88TCC20L08-01

1 collector
2 base

3 emitter

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector - Base Voltage	40	V
V_{CEO}	Collector - Emitter Voltage	21	V
V_{EBO}	Emitter - Base Voltage	3.5	V
I_C	Collector Current (max.)	0.15	A
P_{DISS}	Total Device Dissipation at + 25°C	5.8	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	30	°C/W
---------------	----------------------------------	----	------

TCC20L08**ELECTRICAL CHARACTERISTICS** ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

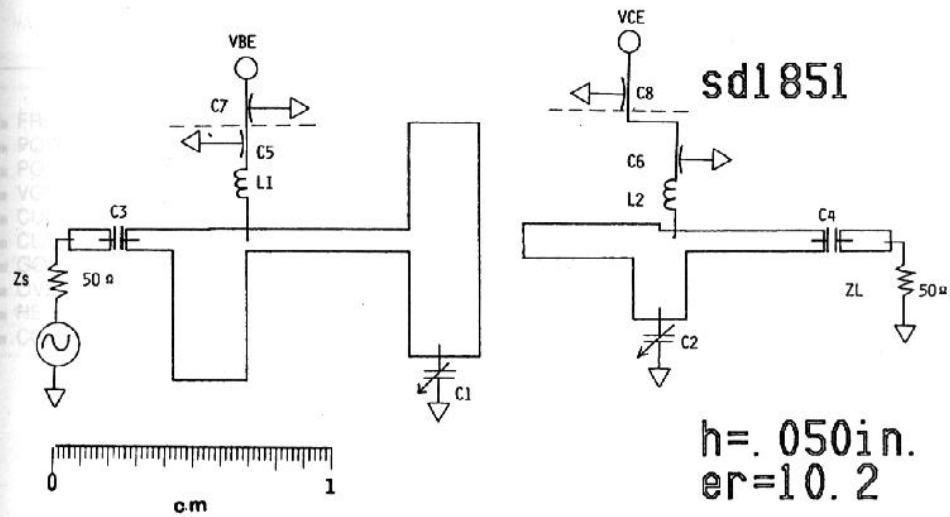
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1\text{mA}$	40	45		V
BV_{CEO}	$I_{\text{C}} = 5\text{mA}$	21	25		V
BV_{EBO}	$I_{\text{E}} = 1\text{mA}$	3.5	4		V
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 100\text{mA}$	15		150	

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{O}	$f = 2\text{GHz}$ $V_{\text{CE}} = 20\text{V}$ $I_{\text{C}} = 120\text{mA}$	0.8			W
P_{G}	$f = 2\text{GHz}$ $V_{\text{CE}} = 20\text{V}$ $I_{\text{C}} = 120\text{mA}$	8			dB

BIAS CONDITIONS $V_{\text{CE}} = 20\text{V}$

Frequency	S11		S21		S12		S22	
MHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
500	.914	178.6	4.446	77.3	.022	28.6	.227	-108.
1000	.906	168.9	2.317	58.8	.026	43.6	.323	-123.
1500	.876	159.0	1.590	40.7	.035	55.3	.426	-138.
2000	.845	146.4	1.270	22.4	.050	62.3	.498	-152.
2500	.811	130.7	1.088	8.4	.073	59.7	.569	-168.
3000	.744	105.3	.931	10.9	.107	54.5	.618	175



S88TCC20L08-02

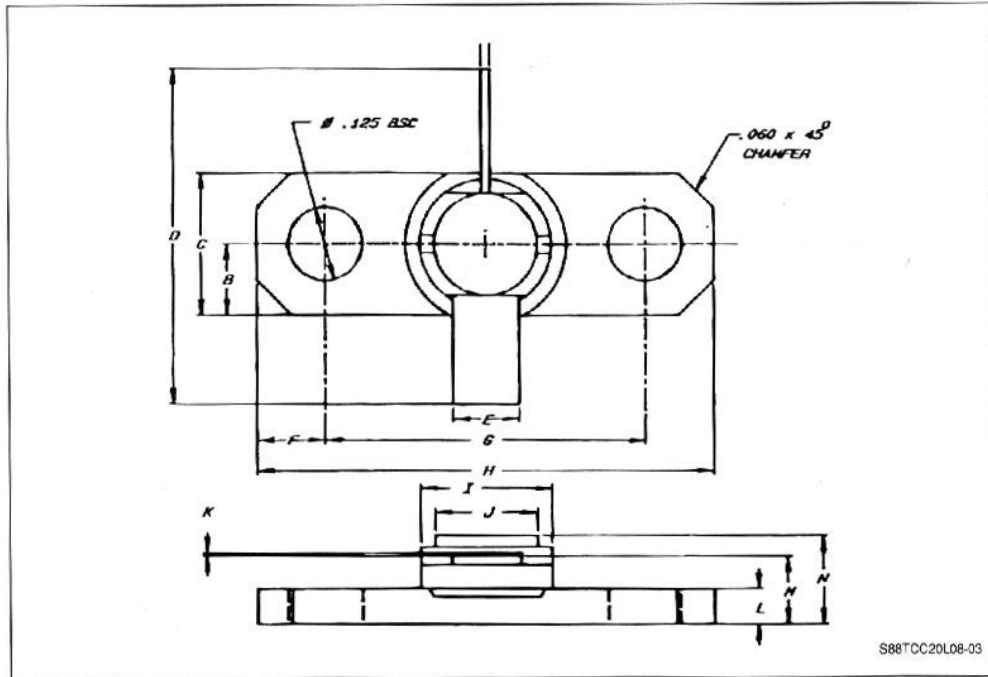
PARTS LIST

- L₁ - 3 turn choke #28 wire .080" dia.
- L₂ - 3 turn choke #28 wire .080" dia.
- C₁ - .4 - 2.5pF Johanson capacitor
- C₂ - .4 - 2.5pF Johanson capacitor
- C₃ - 100pF chip capacitor ATC
- C₄ - 100pF chip capacitor ATC
- C₅ - 15,000pF chip capacitor ATC
- C₆ - 15,000pF chip capacitor ATC
- C₇ - 15,000pF EMI Filter 4 - 40
- C₈ - 15,000pF EMI Filter 4 - 40
- S₁ - Epsilam 10 er = 10.2H = .050" 1 oz cu
 SMA Launcher CDI (2 pieces)
 .397 sq fixture housing
 Heat sink

TCC20L08

PACKAGE MECHANICAL DATA

.230 2LFL/FLM



	Minimum Inches/mm	Maximum Inches/mm
A	.025/0.64	.035/0.89
B	.115/2.92 BSC	
C	.225/5.72	.235/5.97
D	.720/18.29	.750/19.05
E	.110/2.79	.120/3.05
F	.120/3.05 BSC	
G	.555/14.10	.565/14.35

	Minimum Inches/mm	Maximum Inches/mm
H	.795/20.19	.805/20.45
I	.222/5.64	.236/5.99
J	.165/4.19	.180/4.57
K	.002/0.05	.007/0.18
L	.055/1.40	.067/1.70
M	.120/3.18	.140/3.56
N		.170/4.32