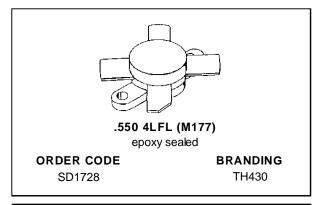
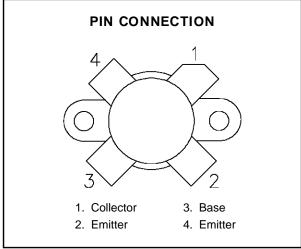


# SD1728 (TH430)

# RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

- OPTIMIZED FOR SSB
- 30 MHz
- 50 VOLTS
- IMD 30 dB
- GOLD METALLIZATION
- COMMON EMITTER
- Pout = 250 W PEP WITH 14.5 dB GAIN





# **DESCRIPTION**

The SD1728 is a 50 V epitaxial silicon NPN planar transistor designed primarily for SSB and VHF communications. This device utilizes emitter ballasting for improved ruggedness and reliability.

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

Symbol	Parameter	Value	Unit	
V <sub>CBO</sub>	Collector-Base Voltage	110	V	
V <sub>CEO</sub>	Collector-Emitter Voltage	55	V	
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V	
Ic	Device Current	40	А	
Poiss	Power Dissipation	330	W	
TJ	Junction Temperature	+200	°C	
T <sub>STG</sub>	Storage Temperature	– 65 to +150	°C	

#### THERMAL DATA

D=	Junatian Casa Thormal Pagistones	0.4	°C/\\\
RTH(j-c)	Junction-Case Thermal Resistance	0.4	- C/ VV

November 1992 1/9

# SD1728 (TH430)

# **ELECTRICAL SPECIFICATIONS** (Tcase = 25°C)

# STATIC

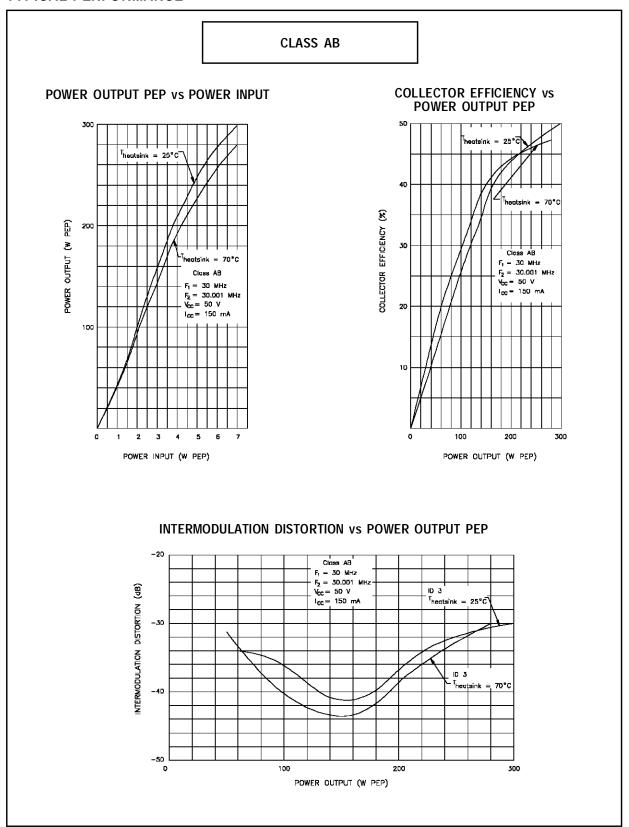
Symbol	Test Conditions	Value			Unit		
		Min.	Тур.	Max.	Oiiit		
BVces	I <sub>C</sub> = 200mA	$V_{BE} = 0V$		110	_	_	V
BV <sub>CEO</sub>	I <sub>C</sub> = 200mA	$I_B = 0mA$		55	_	_	V
BV <sub>EBO</sub>	I <sub>E</sub> = 20mA	$I_C = 0mA$		4.0	_	_	V
I <sub>CEO</sub>	V <sub>CE</sub> = 30V	$I_{E} = 0mA$		_	_	10	mA
Ices	Vce = 60V	I <sub>E</sub> = 0mA		_	_	10	mA
hFE	Vce = 6V	I <sub>C</sub> = 10A		15	_	45	_

# **DYNAMIC**

Symbol	Test Conditions		Value			Unit	
	rest Conditions			Min.	Тур.	Max.	
Роит	f = 30 MHz	V <sub>C</sub> C = 50 V	$I_{CQ} = 150 \text{ mA}$	250	_	_	W
G <sub>P</sub> *	Pout = 250 W PEP	$V_{CC} = 50 V$	$I_{CQ} = 150 \text{ mA}$	14.5	_	_	dB
IMD*	Pout = 250 W PEP	$V_{CC} = 50 V$	$I_{CQ} = 150 \text{ mA}$	_	_	-30	dBc
η <sub>C</sub> *	P <sub>OUT</sub> = 250 W PEP	$V_{CC} = 50 \text{ V}$	$I_{CQ} = 150 \text{ mA}$	37	_		%
Сов	f = 1 MHz	$V_{CB} = 50 V$		_	_	360	pF

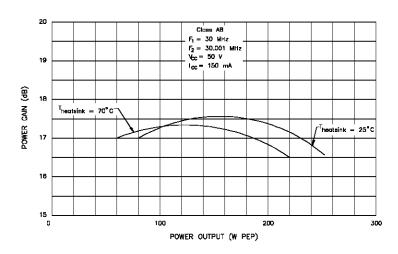
Note: \* Two Tone Method; f $_1$  = 30.00 MHz; f $_2$  = 30.001 MHz In Class C: G $_P$  Min. 13.5 dB, Efficiency 65%@ 30MHz G $_P$  Min. 10 dB, Efficiency 57%@ 70MHz

#### **TYPICAL PERFORMANCE**

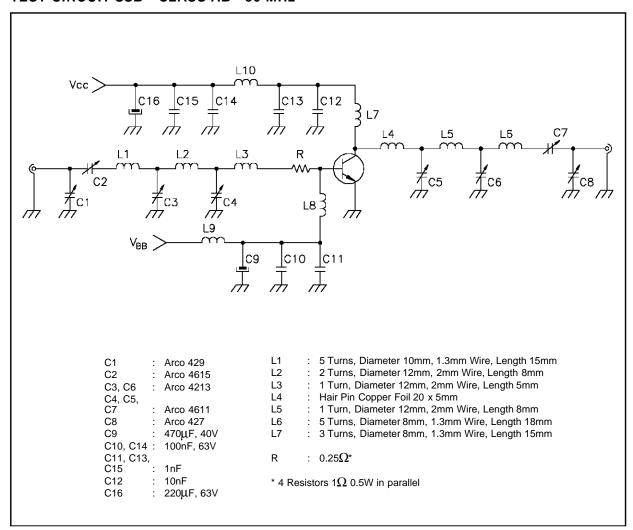


# TYPICAL PERFORMANCE (cont'd)

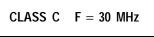
#### POWER GAIN vs POWER OUTPUT PEP



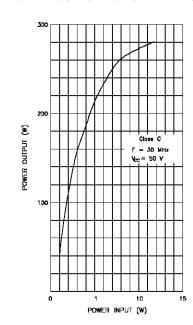
#### TEST CIRCUIT SSB - CLASS AB - 30 MHz



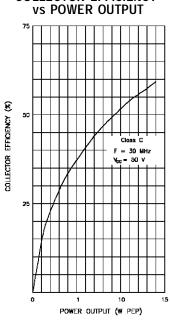
#### **TYPICAL PERFORMANCE**



# POWER OUTPUT vs POWER INPUT

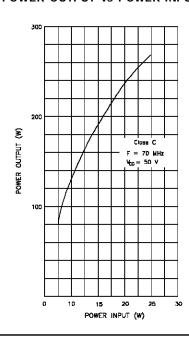


# **COLLECTOR EFFICIENCY**

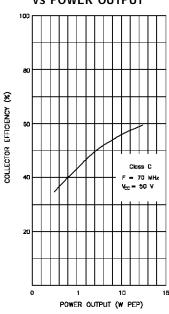


 ${\color{red} CLASS~C~~F=70~MHz} \\$ 

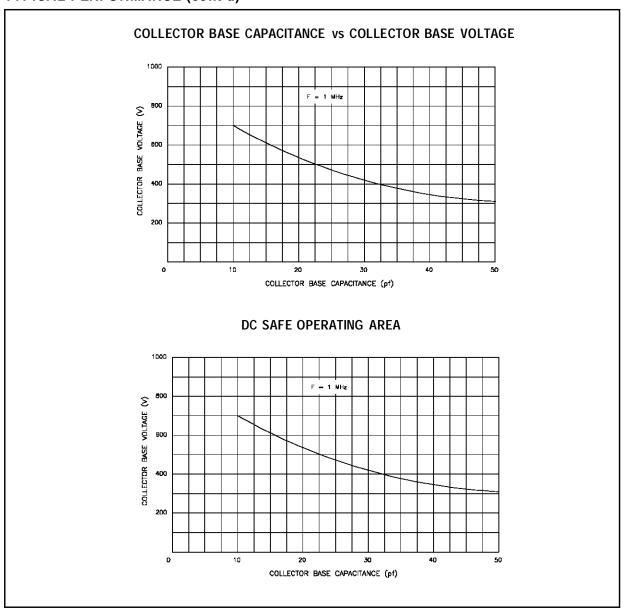
#### POWER OUTPUT vs POWER INPUT



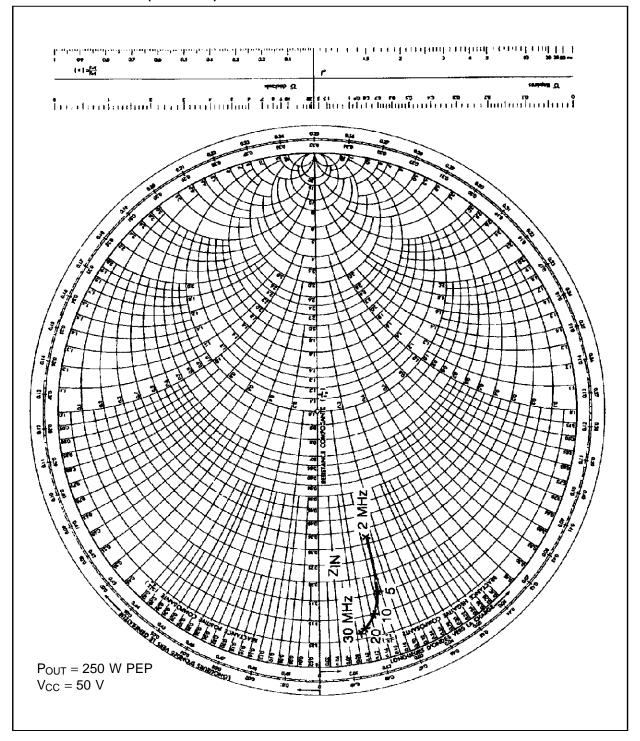
# **COLLECTOR EFFICIENCY** vs POWER OUTPUT



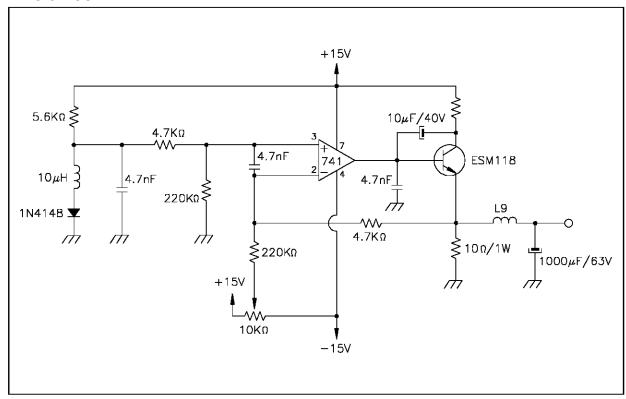
# TYPICAL PERFORMANCE (cont'd)



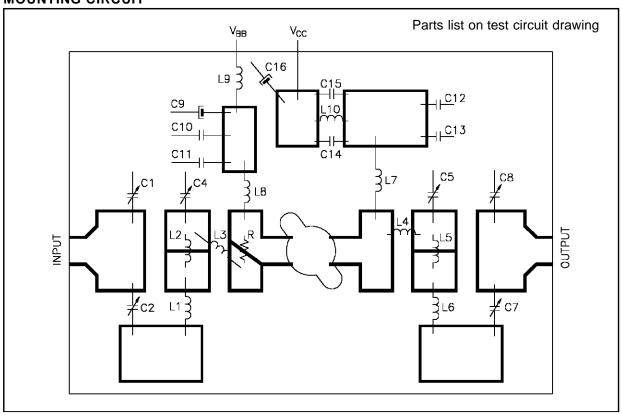
# **IMPEDANCE DATA (TYPICAL)**



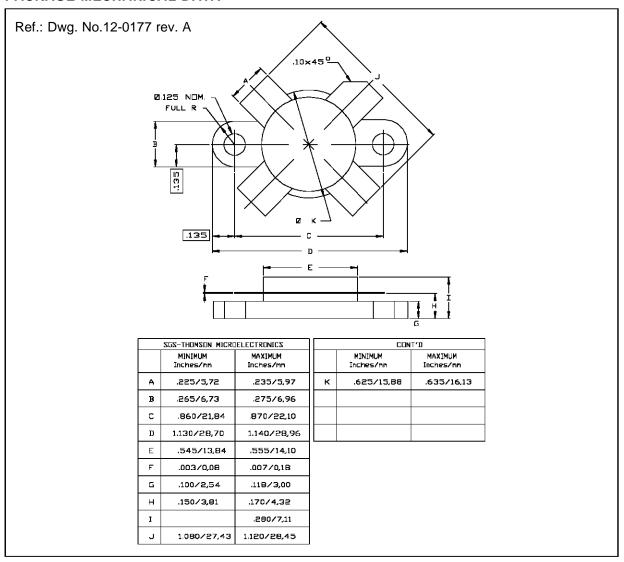
# **BIAS CIRCUIT**



# **MOUNTING CIRCUIT**



#### PACKAGE MECHANICAL DATA



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

©1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.

