NPN SILICON RF POWER TRANSISTOR

DESCRIPTION:

The **ASI CBSL30** is agold metalized epitaxial silicon NPN transistor, using diffused ballast resistors for high linearity Calss-AB operation for cellular base station application.

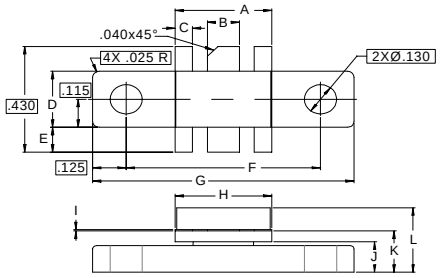
FEATURES:

- Internal Input Matching Network
- P_G = 7.5 dB at 30 W/960 MHz
- ***Omnigold***™ Metalization System
- η_C = 55 % Typ.
- = Load mismatch capability 20:1

MAXIMUM RATINGS

I_C	7.5 A
V_{CBO}	48V
V_{CEO}	25 V
V_{EBO}	3.5 V
P_{DISS}	88 W @ T_C = 25 °C
T_J	-65 °C to +200 °C
T_{STG}	-65 °C to +150 °C
θ_{JC}	2.0 °C/W

PACKAGE STYLE .230 6L FLG



DIM	MINIMUM inches / mm	MAXIMUM inches / mm
A	.355 / 9.02	.365 / 9.27
B	.115 / 2.92	.125 / 3.18
C	.075 / 1.91	.085 / 2.16
D	.225 / 5.72	.235 / 5.97
E	.090 / 2.29	.110 / 2.79
F	.720 / 18.29	.730 / 18.54
G	.970 / 24.64	.980 / 24.89
H	.355 / 9.02	.365 / 9.27
I	.004 / 0.10	.006 / 0.15
J	.120 / 3.05	.130 / 3.30
K	.160 / 4.06	.180 / 4.57
L	.230 / 5.84	.260 / 6.60

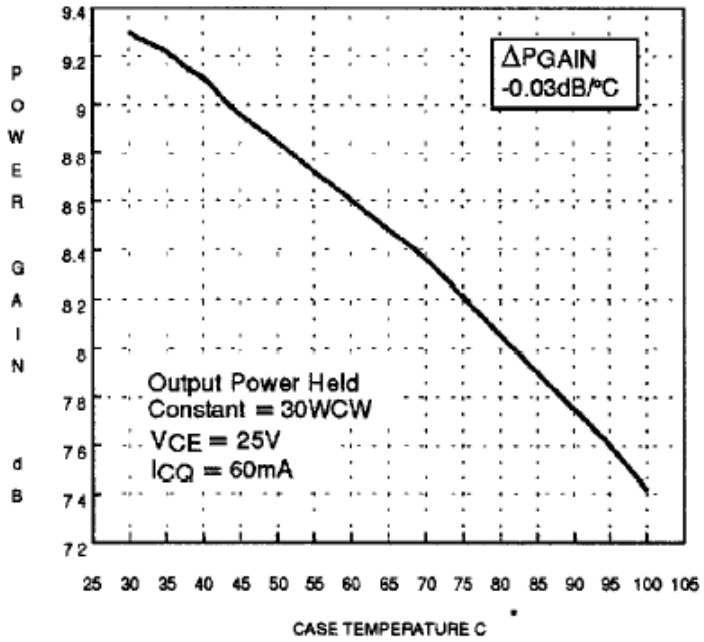
ORDER CODE: ASI10582

CHARACTERISTICS T_C = 25 °C

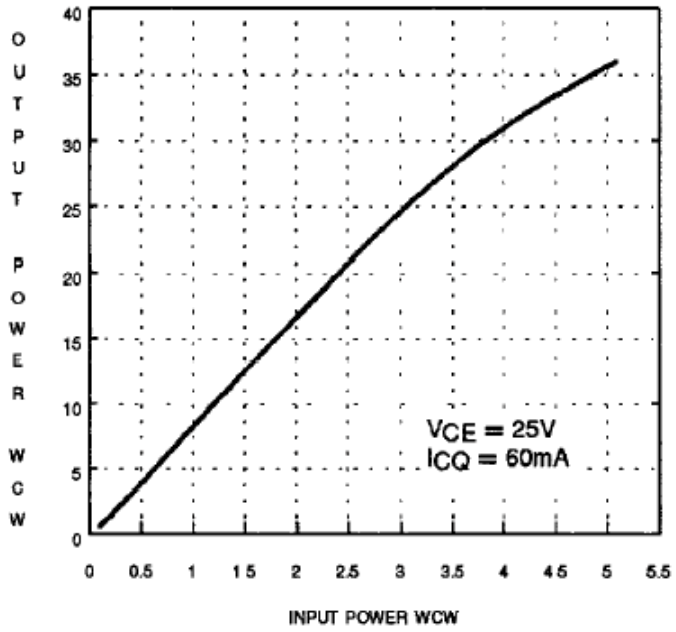
SYMBOL	TEST CONDITIONS			MINIMUM	TYPICAL	MAXIMUM	UNITS
BV_{CBO}	I_C = 100 Ma			48	55	---	V
BV_{CER}	I_C = 40 mA	R_{BE} = 150 Ω		30	40	---	V
BV_{CEO}	I_C = 40 mA			25	28	---	
BV_{EBO}	I_E = 10 mA			3.5	5.0	---	V
I_{CBO}	V_{CE} = 24 V			10	---	---	mA
h_{FE}	V_{CE} = 20 V	I_C = 2.0 A		15	40	100	---
C_{OB}	V_{CB} = 25 V		f = 1.0 MHz		42	50	pF
P_G	V_{CE} = 25 V	I_{CQ} = 60 mA	f = 860 MHz	7.5	9.0	---	dB
IMD_3	P_{OUT} = 30 W	f_1 = 860.0 MHz	f_2 = 860.1 MHz		-35		dBc
η_C					55		%

$VSWR_1$	V_{CE} = 25 V VSWR = 20:1 V_{CE} = 25 V ± 20% VSWR = 10:1	No Degradation in Output Device	**Typ.**
$VSWR_2$	V_{CE} = 25 V ± 20% VSWR = 5:1 P_{IN} = P_{IN} (norm) +3 dB	No Degradation in Output Device	**Typ.**
OVD	V_{CE} = 25 V P_{IN} (norm) = +5 dB V_{CE} = 25 V ± 20% P_{IN} (norm) = +3 dB	No Degradation in Output Device	**Typ.**

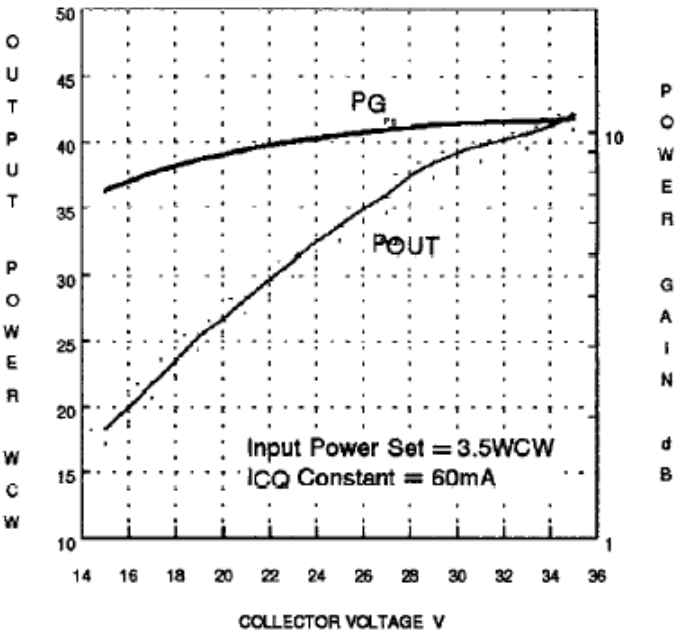
POWER GAIN vs CASE TEMPERATURE



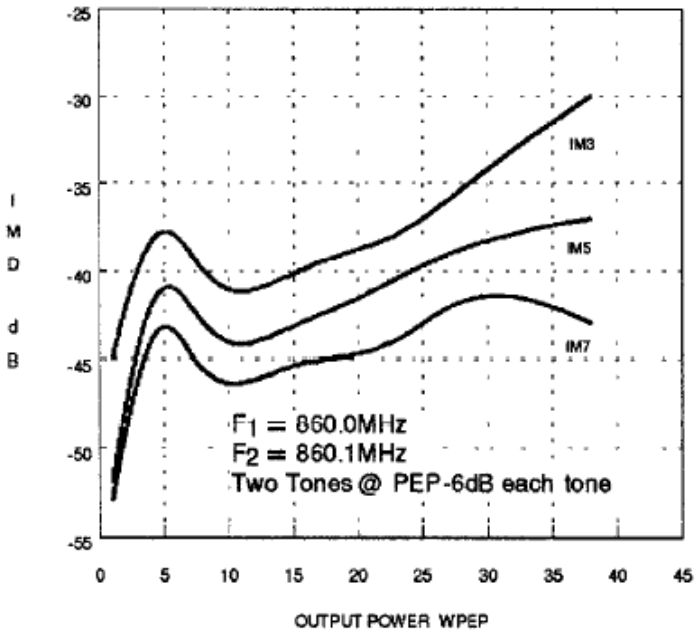
OUTPUT POWER vs INPUT POWER



OUTPUT POWER & GAIN vs VOLTAGE

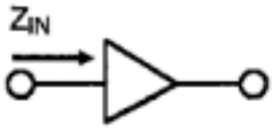


IM DISTORTION vs OUTPUT POWER

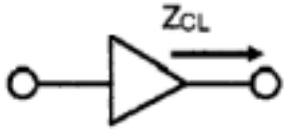


IMPEDANCE DATA

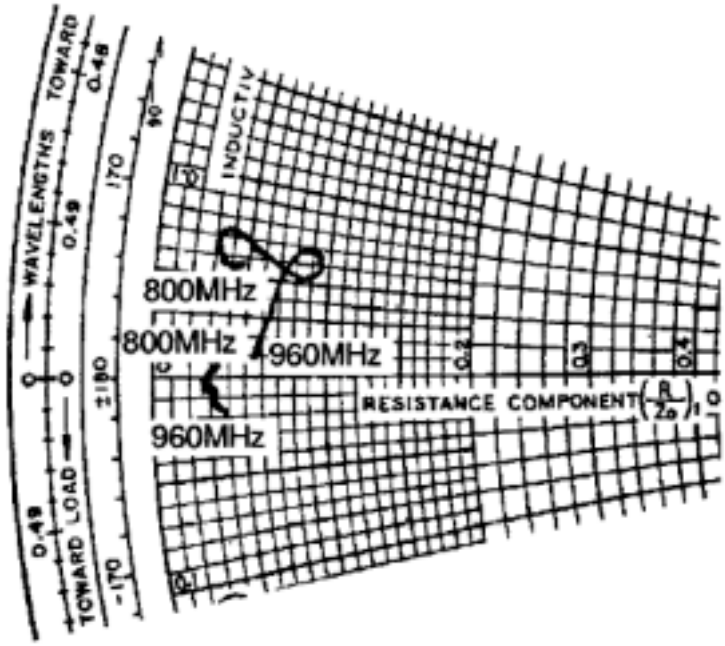
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
800 MHz	4.3 + j 5.8	3.5 + j 0.2
830 MHz	3.2 + j 6.1	3.5 + j 0.1
860 MHz	3.5 + j 7.1	2.9 – j 0.2
900 MHz	5.3 + j 6.4	3.0 – j 0.6
915 MHz	6.1 + j 6.3	3.2 – j 0.7
930 MHz	9.4 + j 6.3	3.2 – j 1.1
945 MHz	6.6 + j 3.0	3.3 – j 1.2
960 MHz	5.9 + j 1.0	3.4 – j 1.5



P_{OUT} = 30W
V_{CE} = 25 V
Normalized to 50 ohms