

DESCRIPTION

The SD1532 is a gold metallized, silicon NPN power transistor. The SD1532 is designed for applications requiring high peak power and low duty cycles such as IFF, DME, TACAN. The SD1532 is packaged in the .280" input matched stripline package resulting in improved broadband performance and a low thermal resistance. The SD1532 is also available studless → SD 1532-1

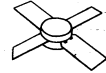
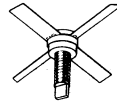
FEATURES

- * Designed for high power pulse IFF, DME, TACAN
- * 55 watts (min.) IFF 1030-1090MHz
- * 50 watts (min.) DME 1025-1150MHz
- * 40 watts (min.) TACAN 960-1215MHz
- * Greater than 8.5dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite load -- VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency	=	1030-1090 MHz
Power Out	=	55.0 Watts
Voltage	=	50.0 Volts
Power Gain	=	9.5 dB
Pulse Width	=	10 μs
Duty Cycle	=	1 %

SD 1532

SD 1532-1


 CB-303
 (.280 4L STUD (A))

 CB-410
 (.280 4L SL (A))

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V_{CBO}	65.0	V
Collector-Emitter Voltage		V_{CES}	65.0	V
Emitter-Base Voltage		V_{EBO}	3.5	V
Peak Collector Current (Max.)		I_C	3.75	A
Total Device Dissipation at +25°C		P_{tot}	175.0	W
Storage and Junction Temperatures		T_{stg}	-65 to +150	°C
		T_j	+200	°C

Junction Case Thermal Resistance	$R_{th(j-c)}$	1.0	°C/W
----------------------------------	---------------	-----	------

January 1982 - 1/2

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CBO}^*	65.0	-	-	V	$I_C = 10mA$ $I_E = 0$
BV_{CES}^*	65.0	-	-	V	$I_C = 25mA$ $V_{BE} = 0$
BV_{EBO}	3.5	-	-	V	$I_E = 10mA$ $I_C = 0$
I_{CES}	-	-	3.0	mA	$V_{CE} = 50.0V$ $V_{BE} = 0$

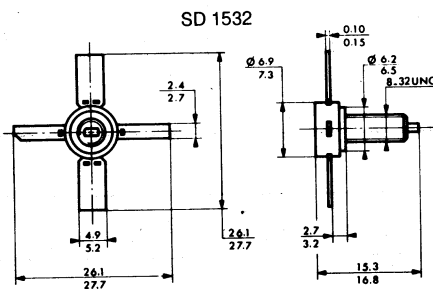
* Pulsed through 25 mH inductor

DYNAMIC

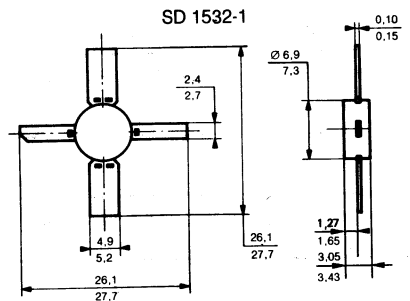
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o^{**}	55.0	-	-	W	$f = 1090MHz$ $V_{CE} = 50.0V$
P_g	9.5	-	-	dB	$f = 1090MHz$ $V_{CE} = 50.0V$
P_o^{**}	50.0	-	-	W	$f = 1025/MHz$ $V_{CE} = 50.0V$ 1150
P_g	9.0	-	-	dB	$f = 1025/MHz$ $V_{CE} = 50.0V$ 1150
P_o^{***}	40.0	-	-	W	$f = 960/MHz$ $V_{CE} = 50.0V$ 1215
P_g	8.5	-	-	dB	$f = 960/MHz$ $V_{CE} = 50.0V$ 1215

** Pulse width 10 μs , duty cycle 1%
 *** Pulse width 10 μs , duty cycle 10%

CASE DESCRIPTION



CB-303
(.280 4L STUD (A))



CB-410
(.280 4L SL (A))

Dimensions in millimeters

SD 1532-8
MICROWAVE PULSED POWER TRANSISTOR

DESCRIPTION

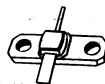
The SD 1532-8 is a gold metallized, silicon NPN power transistor. The SD 1532 is designed for applications requiring high peak power and low duty cycles such as IFF, DME, TACAN.

The SD 1532-8 is packaged in the .250" input matched hermetical stripline flange package resulting in improved broadband performance and a low thermal resistance.

FEATURES

- * Designed for high power pulse IFF, DME, TACAN
- * 55 watts (min.) IFF 1030-1090MHz
- * 50 watts (min.) DME 1025-1150MHz
- * 40 watts (min.) TACAN 960-1215MHz
- * Greater than 8.5dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite load -- VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency	=	1030-1090 MHz
Power Out	=	55.0 Watts
Voltage	=	50.0 Volts
Power Gain	=	9.5 dB
Pulse Width	=	10 μ s
Duty Cycle	=	1 %



Case : CB-403 (.250 2L FL HERM)

ABSOLUTE RATINGS t case = 25°C

ABSOLUTE RATINGS	SYMBOLS	VALUES	UNITS
Collector-Base Voltage	V_{CBO}	65.0	V
Collector-Emitter Voltage	V_{CES}	65.0	V
Emitter-Base Voltage	V_{EBO}	3.5	V
Peak Collector Current (Max.)	I_C	3.75	A
Total Device Dissipation at +25°C	P_{tot}	175.0	W
Storage and Junction Temperatures	T_{stg}	-65 to +150	°C
	T_j	+200	°C

Junction Case Thermal Resistance

$R_{th(j-c)}$	1.0	°C/W
---------------	-----	------

January 1982 - 1/2

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CBO}^*	65.0	-	-	V	$I_C = 10mA$ $I_E = 0$
BV_{CES}^*	65.0	-	-	V	$I_C = 25mA$ $V_{BE} = 0$
BV_{EBO}	3.5	-	-	V	$I_E = 10mA$ $I_C = 0$
I_{CES}	-	-	3.0	mA	$V_{CE} = 50.0V$ $V_{BE} = 0$

* Pulsed through 25 mH inductor

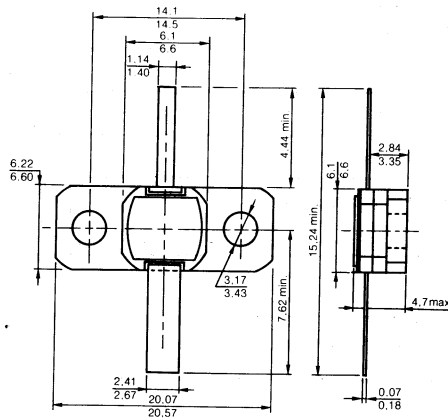
DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o^{**}	55.0	-	-	W	$f = 1090MHz$ $V_{CE} = 50.0V$
P_g	9.5	-	-	dB	$f = 1090MHz$ $V_{CE} = 50.0V$
P_o^{**}	50.0	-	-	W	$f = \frac{1025}{1150}MHz$ $V_{CE} = 50.0V$
P_g	9.0	-	-	dB	$f = \frac{1025}{1150}MHz$ $V_{CE} = 50.0V$
P_o^{***}	40.0	-	-	W	$f = \frac{960}{1215}MHz$ $V_{CE} = 50.0V$
P_g	8.5	-	-	dB	$f = \frac{960}{1215}MHz$ $V_{CE} = 50.0V$

** Pulse width 10 μs , duty cycle 1%

*** Pulse width 10 μs , duty cycle 10%

CASE DESCRIPTION



Dimensions in millimeters

CB-403
(250 2L FL HERM)

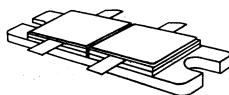
DESCRIPTION

The SD1543 is a hermetically sealed, gold metallized, silicon NPN balanced power transistor. The SD1543 is designed for applications requiring high peak power and low duty cycles such as IFF and DME. The SD1543 is packaged in a hermetic metal/ceramic package with internal input/output matching, resulting in improved broadband performance and a low thermal resistance.

FEATURES

- * Designed for high power pulse IFF and DME
- * 1200 watts (min.) IFF 1030-1090MHz
- * 1000 watts (min.) DME 1025-1150MHz
- * Greater than 5.25 dB Gain
- * Refractory gold metallization
- * Ballasting and low thermal resistance for reliability and ruggedness
- * 20:1 load -- VSWR capability at specified operating conditions
- * Input and output matched, common base balanced configuration

Frequency	=	1025-1150 MHz
Power Out	=	1000 Watts
Voltage	=	50.0 Volts
Power Gain	=	5.25 dB
Pulse Width	=	10 μ s
Duty Cycle	=	1 %



Case: CB-409 (2x .400 .500 4L FL B HERM)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V _{CBO}	65.0	V
Collector-Emitter Voltage		V _{CEO}	65.0	V
Emitter-Base Voltage		V _{EBO}	3.5	V
Peak Collector Current (Max.)		I _C	80.0	A
Total Device Dissipation at +25°C		P _{tot}	2700.0	W
Storage and Junction Temperatures		T _{stg}	-65 to +200	°C
		T _j	+200	°C

Junction Case Thermal Resistance	R _{th(j-c)}	.035	°C/W
----------------------------------	----------------------	------	------

January 1982 - 1/2

ELECTRICAL CHARACTERISTICS $t_{\text{case}} = 25^{\circ}\text{C}$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
V_{CEO}^*	65.0	-	-	V	$I_{\text{C}} = 50\text{mA}$ $I_{\text{B}} = 0$
V_{CES}^*	65.0	-	-	V	$I_{\text{C}} = 20\text{mA}$ $V_{\text{BE}} = 0$
V_{EBO}	3.5	-	-	V	$I_{\text{E}} = 5\text{mA}$ $I_{\text{C}} = 0$
I_{CES}	-	-	70.0	mA	$V_{\text{CE}} = 50.0\text{V}$ $V_{\text{BE}} = 0$

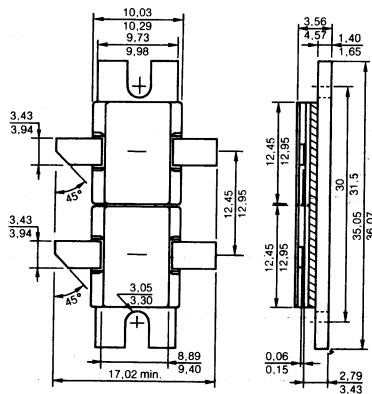
* Pulsed through 25 mH inductor

DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_{O}^{**}	1200.0	1300.0	-	W	$f = 1090\text{MHz}$ $V_{\text{CE}} = 50.0\text{V}$ $P_{\text{i}} = 300\text{W}$
P_{g}	6.0	6.7	-	dB	$f = 1090\text{MHz}$ $V_{\text{CE}} = 50.0\text{V}$ $P_{\text{i}} = 300\text{W}$
P_{O}^{**}	1000.0	1100.0	-	W	$f = \frac{1025}{1150}\text{MHz}$ $V_{\text{CE}} = 50.0\text{V}$ $P_{\text{i}} = 300\text{W}$
P_{g}	5.25	6.0	-	dB	$f = \frac{1025}{1150}\text{MHz}$ $V_{\text{CE}} = 50.0\text{V}$ $P_{\text{i}} = 300\text{W}$

** Pulse width $10\mu\text{s}$, duty cycle 1%

CASE DESCRIPTION

Dimensions
in millimetersCB-409
(2 X .400 .500 4L FL B HERM)

DESCRIPTION

The SD1547 is a gold metallized silicon NPN power transistor. The SD1547 is designed for applications requiring high peak power and low duty cycles such as IFF and TRANSPONDERS.

The SD 1547 is also available studless → SD 1547-1.

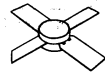
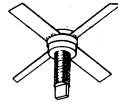
FEATURES

- * Designed for high power pulse
- * 150 watts (min.) IFF 1030-1090MHz
- * Greater than 6.3dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * 30:1 load VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency = 1090 MHz
 Power Out = 150 Watts
 Voltage = 50 Volts
 Power Gain = 6.3 dB
 Pulse Width = 10 μs
 Duty Cycle = 1 %

SD 1547

SD 1547-1



CB-303
(.280 4L STUD (A))

CB-410
(.280 4L SL (A))

ABSOLUTE RATINGS

t case = 25°C

Collector-Base Voltage

V_{CBO}

65.0

UNITS

V

Collector-Emitter Voltage

V_{CES}

65.0

V

Emitter-Base Voltage

V_{EBO}

3.5

V

Peak Collector Current (Max.)

I_C

11.0

A

Storage and Junction Temperatures

T_{stg}

-65 to +150

°C

T_j

+200

°C

Junction Case Thermal Resistance

R_{th(j-c)}

0.3

°C/W

January 1982 - 1/2

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
V_{CBO}	65.0	75.0	-	V	$I_C = 10mA$ $I_E = 0$
V_{CES}^*	65.0	75.0	-	V	$I_C = 25mA$ $V_{BE} = 0$
V_{EBO}	3.5	5.0	-	V	$I_E = 1mA$ $I_C = 0$
I_{CES}	-	-	10.0	mA	$V_{CE} = 50.0V$ $I_E = 0$
h_{FE}	15.0	-	100.0	-	$V_{CE} = 5.0V$ $I_C = 1A$

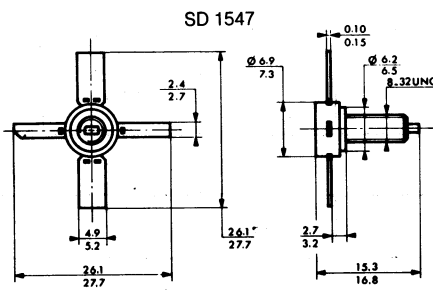
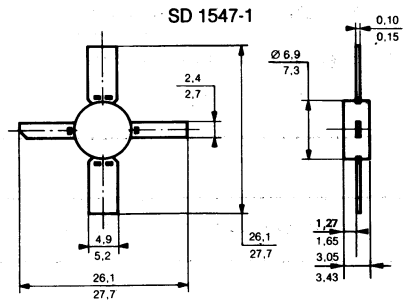
* Pulsed through 25 mH inductor

DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o^{**}	150.0	-	-	W	$f = 1090MHz$ $V_{CC} = 50.0V$
P_E^{**}	6.3	-	-	dB	$f = 1090MHz$ $V_{CC} = 50.0V$

** Pulse width $10 \mu s$, duty cycle 1%

CASE DESCRIPTION

CB-303
(.280 4L STUD (A))CB-410
(.280 4L SL (A))

Dimensions in millimeters

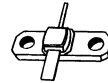
DESCRIPTION

The SD1560 is a hermetically sealed, gold metallized silicon NPN pulse power transistor. The SD1560 is designed for applications requiring high peak power and low duty cycles such as weather radar.

FEATURES

- * Designed for high power pulse applications
- * 90 watts (min.) 780MHz
- * Greater than 8.0dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency	=	780 MHz
Power Out	=	90 Watts
Voltage	=	45.0 Volts
Power Gain	=	8.0 dB
Pulse Width	=	25 μ s
Duty Cycle	=	1 %



Case : CB-403 (.250 2L FL HERM)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V_{CBO}	65.0	v
Collector-Emitter Voltage		V_{CES}	65.0	v
Emitter-Base Voltage		V_{EBO}	3.5	v
Peak Collector Current (Max.)		I_C	5.0	A
Total Device Dissipation at +25°C (Peak)		P_{tot}	350.0	W
Storage and Junction Temperatures		T_{stg}	-65 to +200	°C
		T_j	+200	°C

Junction Case Thermal Resistance	$R_{th(j-c)}$	0.5	°C/W
----------------------------------	---------------	-----	------

September 1981 1/4

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

Symbols	Values			Units	Test Conditions	
	Min.	Typ.	Max.			
BV_{CBO}^*	65.0	-	-	V	$I_C = 10mA$	$I_E = 0$
BV_{CES}^*	65.0	-	-	V	$I_C = 10mA$	$V_{BE} = 0$
BV_{EBO}	3.5	-	-	V	$I_E = 5mA$	$I_C = 0$
I_{CES}	-	-	5.0	mA	$V_{CE} = 45.0V$	$V_{BE} = 0$

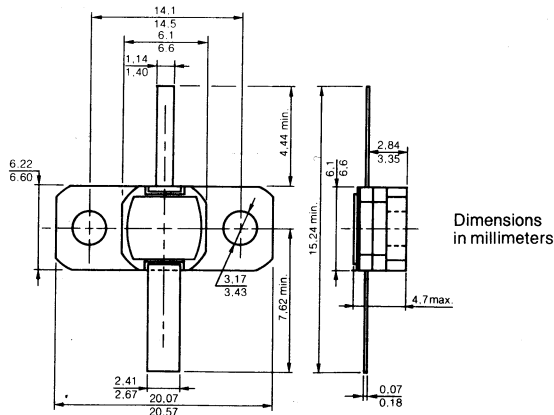
* Pulsed through 25 mH inductor

DYNAMIC

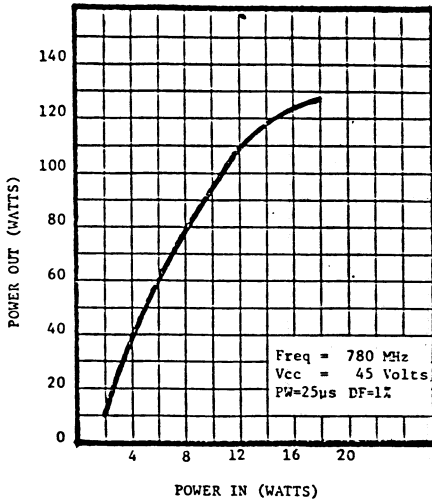
Symbols	Values			Units	Test Conditions		
	Min.	Typ.	Max.				
P_o^{**}	90.0	-	-	W	$f = 780MHz$	$V_{CE} = 45.0V$	$P_i = 14W$
P_g	8.0	-	-	dB	$f = 780MHz$	$V_{CE} = 45.0V$	$P_i = 14W$

**Pulse width 25 μs , duty cycle 1%

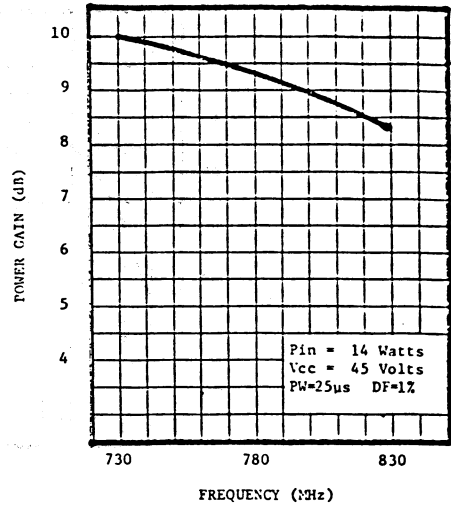
CASE DESCRIPTION

CB-403
(250 2L FL HERM)

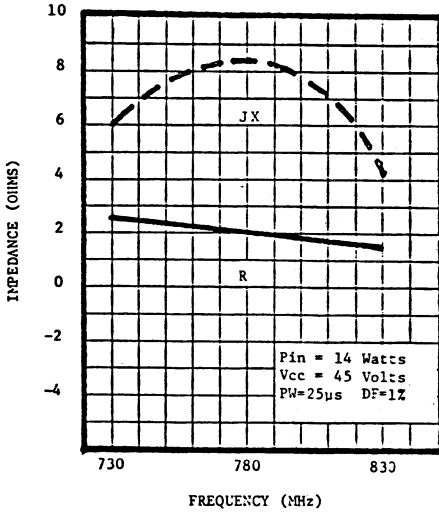
TYPICAL POWER OUT vs POWER IN



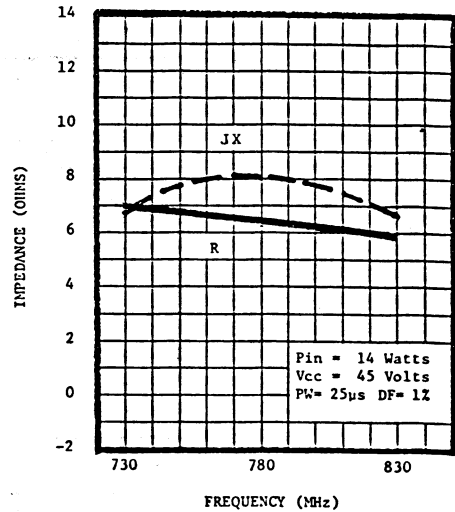
TYPICAL POWER GAIN vs FREQUENCY

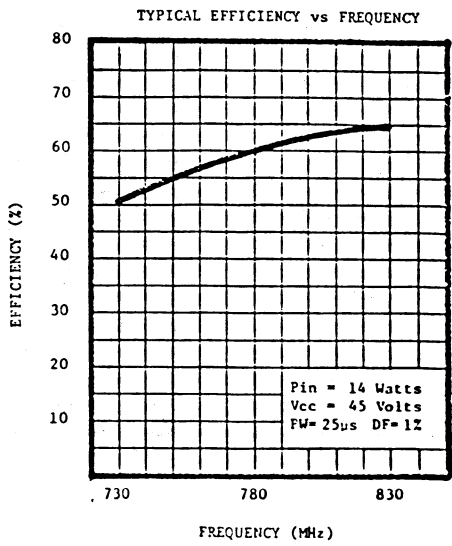
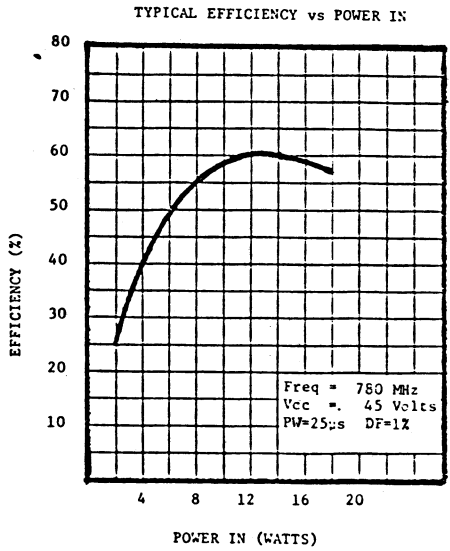


TYPICAL INPUT IMPEDANCE vs FREQUENCY



TYPICAL OUTPUT IMPEDANCE vs FREQUENCY





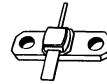
DESCRIPTION

The SD1560-1 is a hermetically sealed, gold metallized, silicon NPN pulse power transistor. The SD1560-1 is designed for applications requiring high peak power and low duty cycles such as weather radar.

FEATURES

- * Designed for high power pulse applications
- * 80 watts (min.) 900MHz
- * Greater than 7.2dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency	=	900 MHz
Power Out	=	80 Watts
Voltage	=	45.0 Volts
Power Gain	=	7.2 dB
Pulse Width	=	25 μ s
Duty Cycle	=	1 %



Case : CB-403 (.250 2L FL HERM)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V_{CBO}	65.0	V
Collector-Emitter Voltage		V_{CES}	65.0	V
Emitter-Base Voltage		V_{EBO}	3.5	V
Peak Collector Current (Max.)		I_C	5.0	A
Total Device Dissipation at +25°C (Peak)		P_{tot}	350.0	W
Storage and Junction Temperatures		T_{stg}	-65 to +200	°C
		T_j	+200	°C

Junction Case Thermal Resistance	$R_{th(j-c)}$	0.5	°C/W
----------------------------------	---------------	-----	------

September 1981 - 1/4

ELECTRICAL CHARACTERISTICS $t_{\text{case}} = 25^{\circ}\text{C}$

STATIC

Symbols	Values			Units	Test Conditions	
	Min.	Typ.	Max.			
V_{CBO}	65.0	-	-	V	$I_{\text{C}} = 10\text{mA}$	$I_{\text{E}} = 0$
V_{CES^*}	65.0	-	-	V	$I_{\text{C}} = 10\text{mA}$	$V_{\text{BE}} = 0$
V_{EBO}	3.5	-	-	V	$I_{\text{E}} = 5\text{mA}$	$I_{\text{C}} = 0$
I_{CES}	-	-	5.0	mA	$V_{\text{CE}} = 45.0\text{V}$	$V_{\text{BE}} = 0$

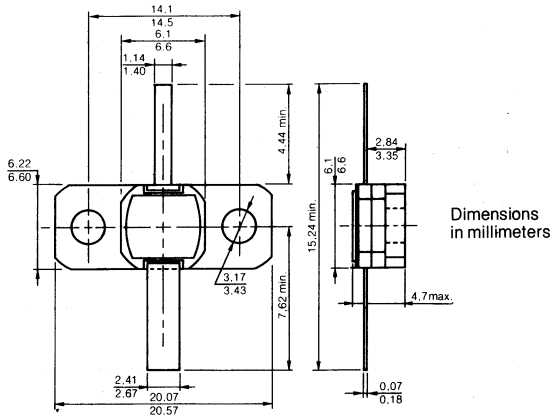
* Pulsed through 25 mH inductor

DYNAMIC

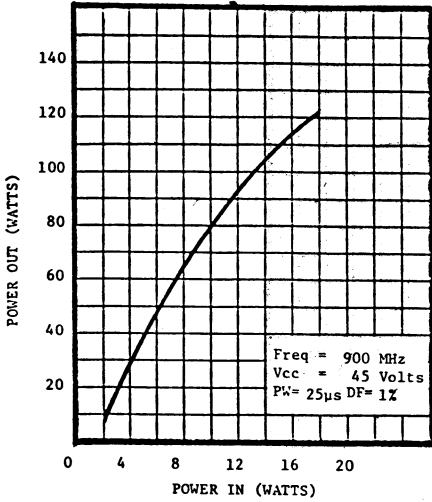
Symbols	Values			Units	Test Conditions		
	Min.	Typ.	Max.				
P_{O}^{**}	80.0	-	-	W	$f = 900\text{MHz}$	$V_{\text{CE}} = 45.0\text{V}$	$P_{\text{i}} = 15\text{W}$
P_{g}	7.2	-	-	dB	$f = 900\text{MHz}$	$V_{\text{CE}} = 45.0\text{V}$	$P_{\text{i}} = 15\text{W}$

**Pulse width $25\mu\text{s}$, duty cycle 1%

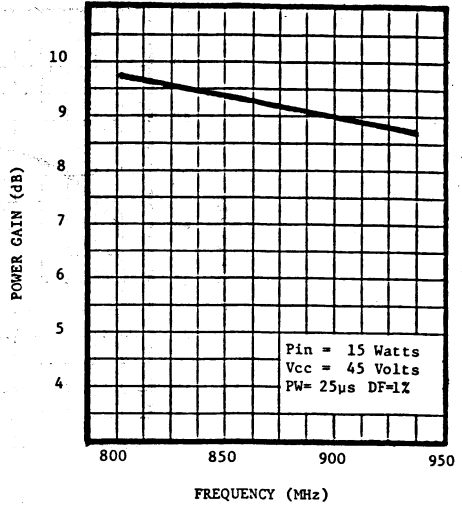
CASE DESCRIPTION

CB-403
(250 2L FL HERM)

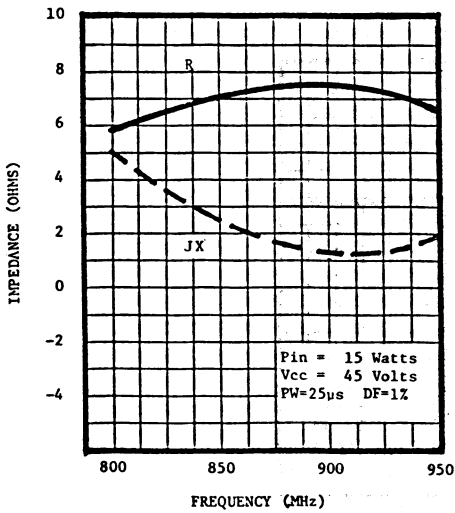
TYPICAL POWER OUT vs POWER IN



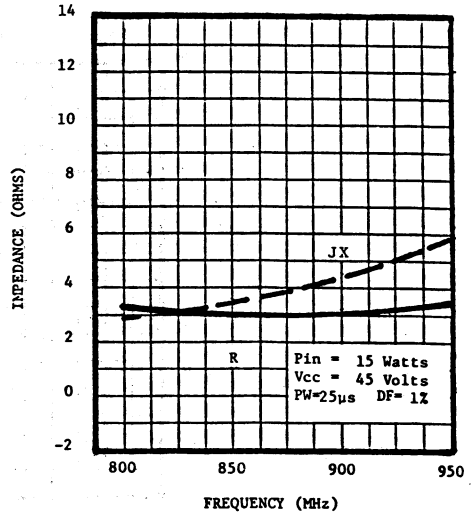
TYPICAL POWER GAIN vs FREQUENCY



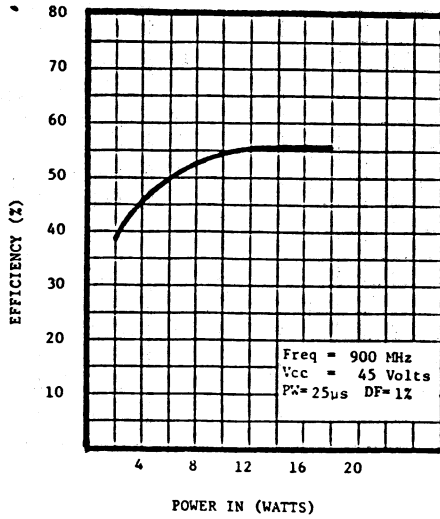
TYPICAL INPUT IMPEDANCE vs FREQUENCY



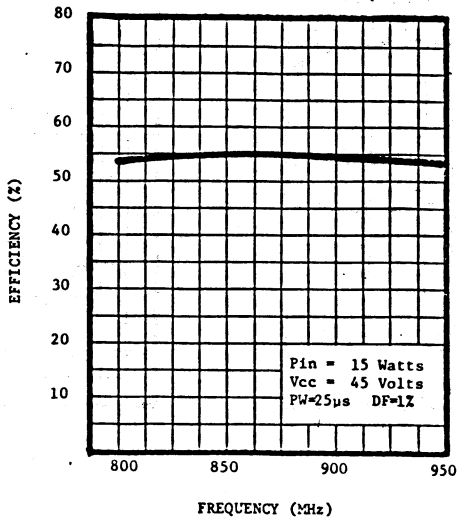
TYPICAL OUTPUT IMPEDANCE vs FREQUENCY



TYPICAL EFFICIENCY vs POWER IN



TYPICAL EFFICIENCY vs FREQUENCY



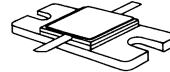
DESCRIPTION

The SD1561 is a hermetically sealed, gold metallized, silicon NPN pulse power transistor. The SD1561 is designed for applications requiring high peak power and low duty cycles such as weather radar.

FEATURES

- * Designed for high power pulse applications
- * 180 watts (min.) 780MHz
- * Greater than 7.8dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency = 780 MHz
 Power Out = 180 Watts
 Voltage = 45.0 Volts
 Power Gain = 7.8 dB
 Pulse Width = 25 μ s
 Duty Cycle = 1 %



Case : CB-404 (.400 SQ 2L FL HERM)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V_{CBO}	65.0	V
Collector-Emitter Voltage		V_{CES}	65.0	V
Emitter-Base Voltage		V_{EBO}	3.5	V
Peak Collector Current (Max.)		I_C	21.6	A
Total Device Dissipation at +25°C (Peak)		P_{tot}	438.0	W
Storage and Junction Temperatures		T_{stg}	-65 to +200	°C
		T_j	+200	°C

Junction Case Thermal Resistance	$R_{th(j-c)}$	0.4	°C/W
----------------------------------	---------------	-----	------

September 1981 - 1/4

ELECTRICAL CHARACTERISTICS $t_{\text{case}} = 25^{\circ}\text{C}$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
V_{CBO}^*	65.0	-	-	V	$I_{\text{C}} = 50\text{ mA}$ $I_{\text{E}} = 0$
V_{CES}^*	65.0	-	-	V	$I_{\text{C}} = 50\text{ mA}$ $V_{\text{BE}} = 0$
V_{EBO}	3.5	-	-	V	$I_{\text{E}} = 10\text{ mA}$ $I_{\text{C}} = 0$
I_{CES}	-	-	7.5	mA	$V_{\text{CE}} = 45.0\text{ V}$ $V_{\text{BE}} = 0$

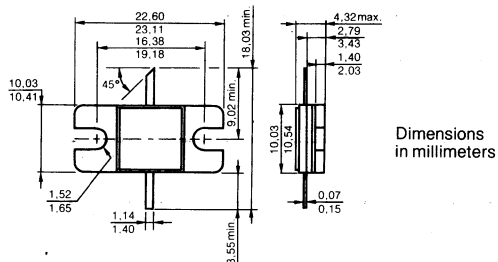
* Pulsed through 25 mH inductor

DYNAMIC

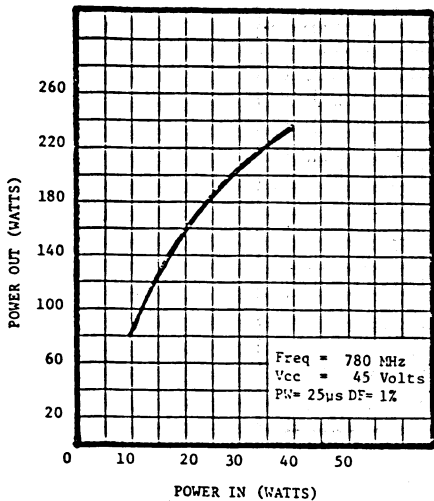
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_{o}^{**}	180.0	-	-	W	$f = 780\text{ MHz}$ $V_{\text{CE}} = 45.0\text{ V}$ $P_{\text{i}} = 30\text{ W}$
P_{g}	7.8	-	-	dB	$f = 780\text{ MHz}$ $V_{\text{CE}} = 45.0\text{ V}$ $P_{\text{i}} = 30\text{ W}$

**Pulse width $25\ \mu\text{s}$, duty cycle 1%

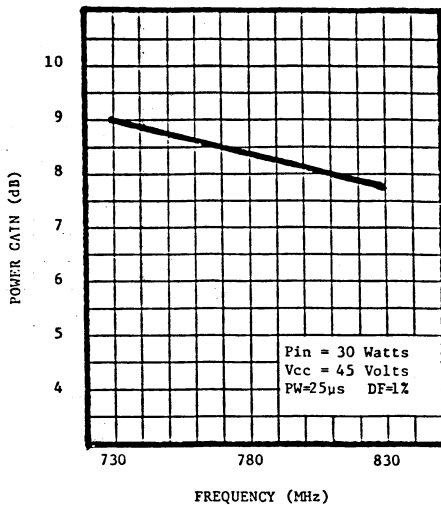
CASE DESCRIPTION

CB-404
(.400 SQ 2L FL HERM)

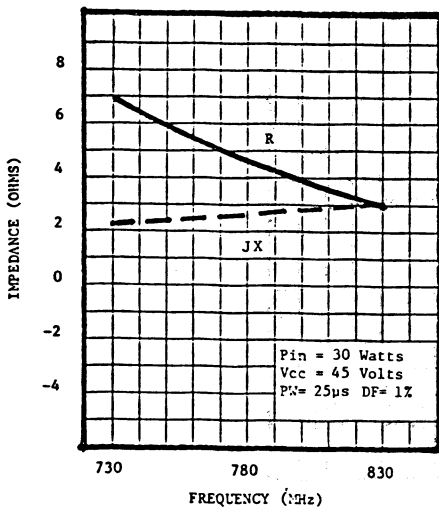
TYPICAL POWER-OUT vs POWER IN



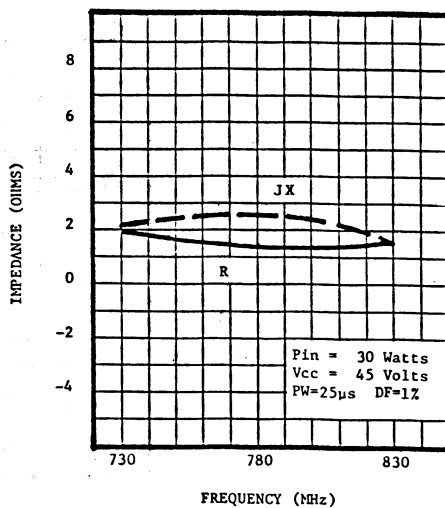
TYPICAL POWER GAIN vs FREQUENCY



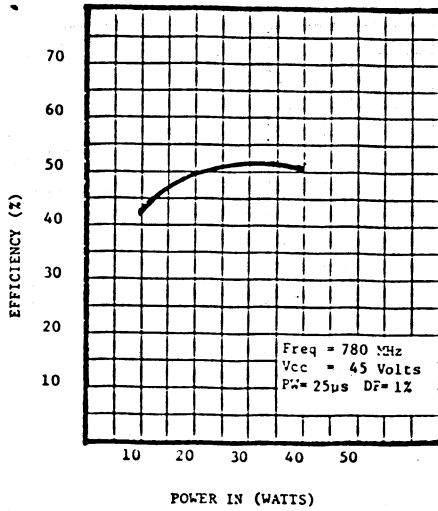
TYPICAL INPUT IMPEDANCE vs FREQUENCY



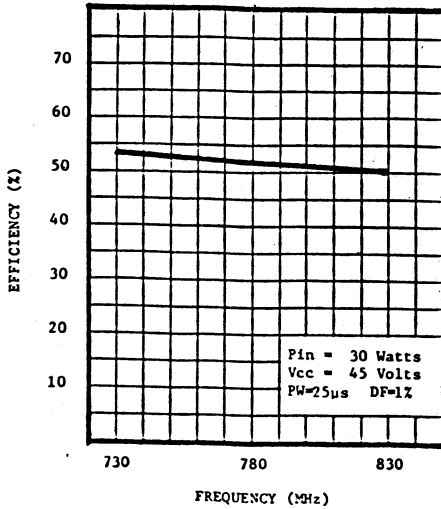
TYPICAL OUTPUT IMPEDANCE vs FREQUENCY



TYPICAL EFFICIENCY vs POWER IN



TYPICAL EFFICIENCY vs FREQUENCY



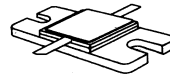
DESCRIPTION

The SD1561-1 is a hermetically sealed, gold metallized, silicon NPN pulse power transistor. The SD1561-1 is designed for applications requiring high peak power and low duty cycles such as weather radar.

FEATURES

- * Designed for high power pulse applications
- * 150 watts (min.) 900MHz
- * Greater than 7.0dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency = 900 MHz
Power Out = 150 Watts
Voltage = 45.0 Volts
Power Gain = 7.0 dB
Pulse Width = 25 μ s
Duty Cycle = 1 %



Case : CB-404 (.400 SQ 2L FL HERM)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V _{CBO}	65.0	v
Collector-Emitter Voltage		V _{CES}	65.0	v
Emitter-Base Voltage		V _{EBO}	3.5	v
Peak Collector Current (Max.)		I _C	21.6	A
Total Device Dissipation at +25°C (Peak)		P _{tot}	438.0	W
Storage and Junction Temperatures		T _{stg} T _j	-65 to +200 +200	°C °C

Junction Case Thermal Resistance	R _{th(j-c)}	0.4	°C/W
----------------------------------	----------------------	-----	------

September 1981 - 1/4

ELECTRICAL CHARACTERISTICS $t_{\text{case}} = 25^{\circ}\text{C}$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CBO}^*	65.0	-	-	V	$I_C = 50\text{mA}$ $I_E = 0$
BV_{CES}^*	65.0	-	-	V	$I_C = 50\text{mA}$ $V_{BE} = 0$
BV_{EBO}	3.5	-	-	V	$I_E = 10\text{mA}$ $I_C = 0$
I_{CES}	-	-	7.5	mA	$V_{CE} = 45.0\text{V}$ $V_{BE} = 0$

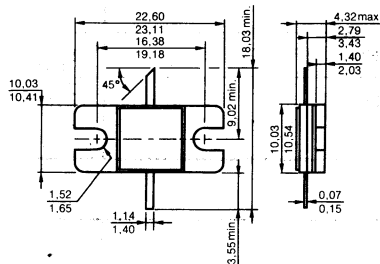
* Pulsed through 25 mH inductor

DYNAMIC

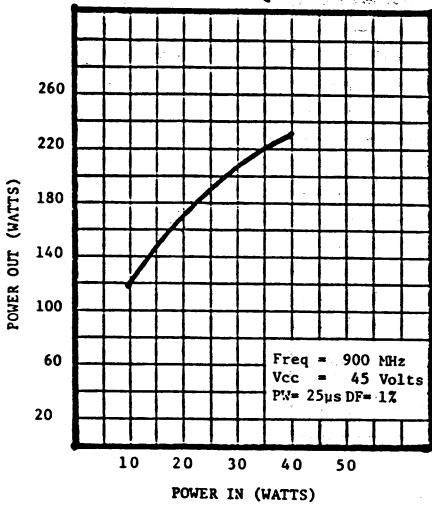
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o^{**}	150.0	-	-	W	$f = 900\text{MHz}$ $V_{CE} = 45.0\text{V}$ $P_i = 30\text{W}$
P_g	7.0	-	-	dB	$f = 900\text{MHz}$ $V_{CE} = 45.0\text{V}$ $P_i = 30\text{W}$

**Pulse width 25 μs , duty cycle 1%

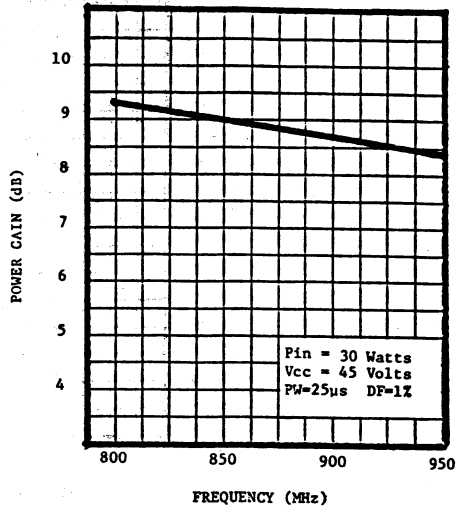
CASE DESCRIPTION

Dimensions
in millimetersCB-404
(400 SQ 2L FL HERM)

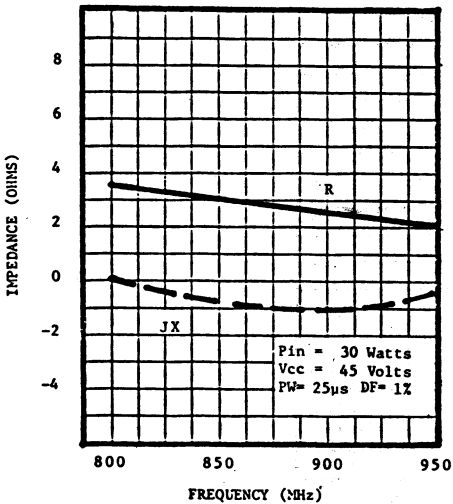
TYPICAL POWER OUT vs POWER IN



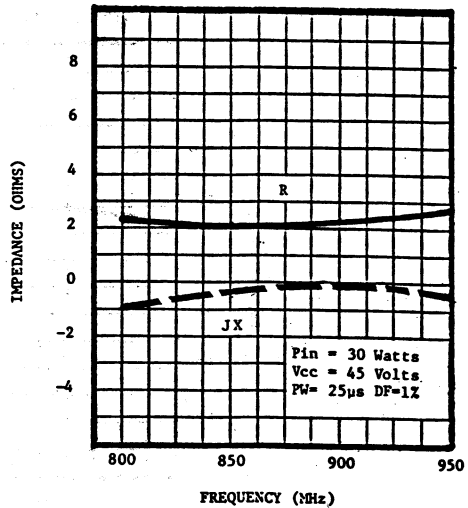
TYPICAL POWER GAIN vs FREQUENCY



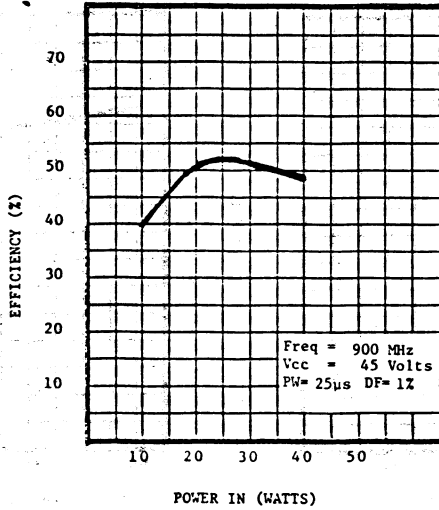
TYPICAL INPUT IMPEDANCE vs FREQUENCY



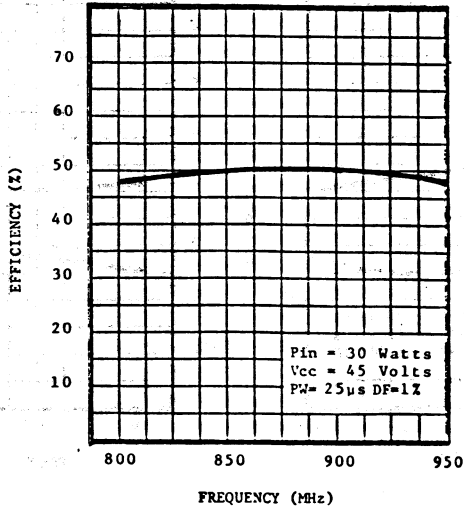
TYPICAL OUTPUT IMPEDANCE vs FREQUENCY



TYPICAL EFFICIENCY vs POWER IN



TYPICAL EFFICIENCY vs FREQUENCY



DESCRIPTION

The SD1562 is a gold metallized, silicon NPN pulse power transistor. The SD1562 is designed for applications requiring high peak power and low duty cycles such as weather radar.

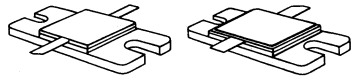
FEATURES

- * Designed for high power pulse applications
- * 400 watts (min.) 780MHz
- * Greater than 7.8dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency = 780 MHz
Power Out = 400 Watts
Voltage = 45.0 Volts
Power Gain = 7.8 dB
Pulse Width = 25 μ s
Duty Cycle = 1 %

SD 1562

SD 1562-6



CB-407
(.400 SQ 2L FL)

CB-408
(.400x.500 2L FL HERM)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V_{CBO}	65.0	V
Collector-Emitter Voltage		V_{CES}	65.0	V
Emitter-Base Voltage		V_{EBO}	3.5	V
Peak Collector Current (Max.)		I_C	36.0	A
Total Device Dissipation at +25°C (Peak)		P_{tot}	875.0	W
Storage and Junction Temperatures		T_{stg}	-65 to +150	°C
		T_j	+200	°C

Junction Case Thermal Resistance	$R_{th(j-c)}$	0.2	°C/W
----------------------------------	---------------	-----	------

September 1981 - 1/4

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CBO}	65.0	-	-	V	$I_C = 100mA$ $I_E = 0$
BV_{CES}^*	65.0	-	-	V	$I_C = 100mA$ $V_{BE} = 0$
BV_{EBO}	3.5	-	-	V	$I_E = 20mA$ $I_C = 0$
I_{CES}	-	-	10.0	mA	$V_{CE} = 45.0V$ $V_{BE} = 0$

* Pulsed through 25 mH inductor

DYNAMIC

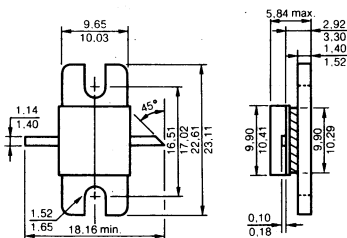
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o^{**}	400.0	-	-	W	$f = 780MHz$ $V_{CE} = 45.0V$ $P_i = 65W$
P_g	7.8	-	-	dB	$f = 780MHz$ $V_{CE} = 45.0V$ $P_i = 65W$

**Pulse width 25 μs , duty cycle 1%

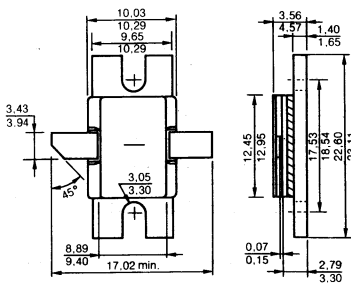
CASE DESCRIPTION

SD 1562

SD 1562-6

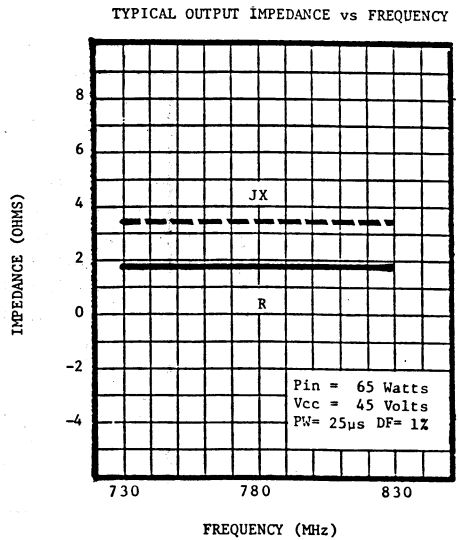
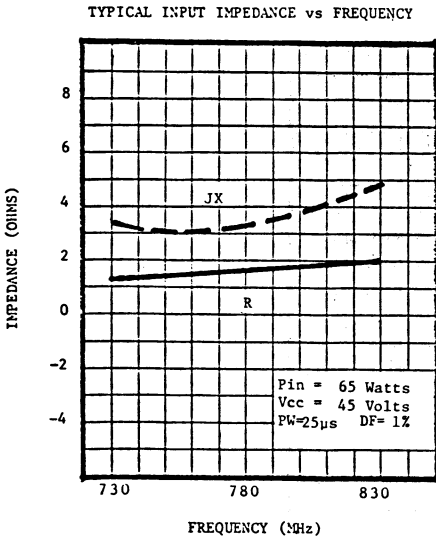
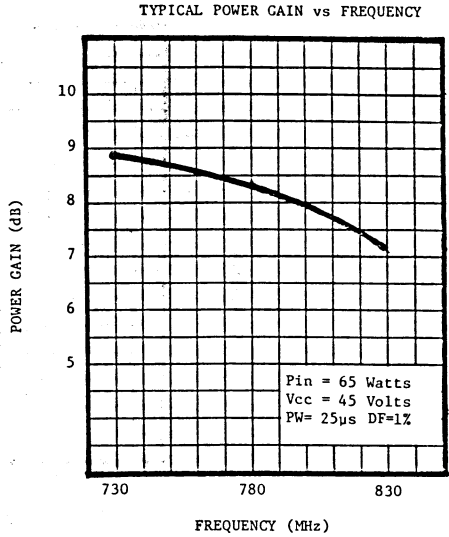
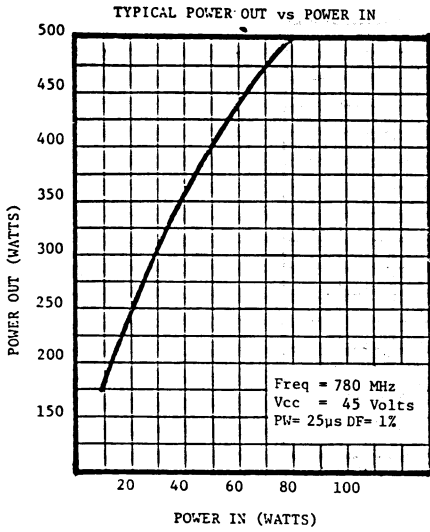


CB-407
(.400 SQ 2L FL)

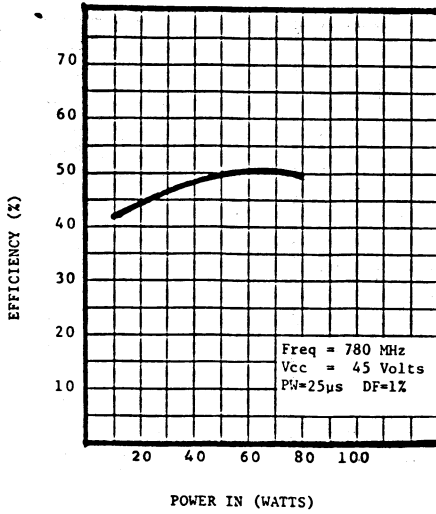


CB-408
(.400 x .500 2L FL HERM)

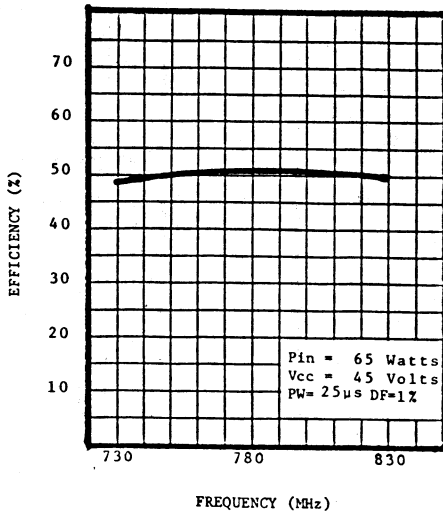
Dimensions in millimeters



TYPICAL EFFICIENCY vs POWER IN



TYPICAL EFFICIENCY vs FREQUENCY



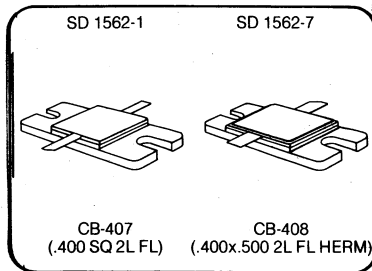
DESCRIPTION

The SD1562-1 is a gold metallized, silicon NPN pulse power transistor. The SD1562-1 is designed for applications requiring high peak power and low duty cycles such as weather radar.

FEATURES

- * Designed for high power pulse applications
- * 350 watts (min.) 900MHz
- * Greater than 7.6dB gain
- * Refractory gold metallization
- * Emitter ballasting and low thermal resistance for reliability and ruggedness
- * Infinite VSWR capability at specified operating conditions
- * Input matched, common base configuration

Frequency = 900 MHz
 Power Out = 350 Watts
 Voltage = 45.0 Volts
 Power Gain = 7.6 dB
 Pulse Width = 25 μ s
 Duty Cycle = 1 %



ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V _{CBO}	65.0	V
Collector-Emitter Voltage		V _{CES}	65.0	V
Emitter-Base Voltage		V _{EBO}	3.5	V
Peak Collector Current (Max.)		I _C	36.0	A
Total Device Dissipation at +25°C (Peak)		P _{tot}	875.0	W
Storage and Junction Temperatures		T _{stg}	-65 to +150	°C
		T _j	+200	°C

Junction Case Thermal Resistance	R _{th(j-c)}	0.2	°C/W
----------------------------------	----------------------	-----	------

September 1981 - 1/4

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CBO}	65.0	-	-	V	$I_C = 100\text{ mA}$ $I_E = 0$
BV_{CES*}	65.0	-	-	V	$I_C = 100\text{ mA}$ $V_{BE} = 0$
BV_{EBO}	3.5	-	-	V	$I_E = 20\text{ mA}$ $I_C = 0$
I_{CES}	-	-	10.0	mA	$V_{CE} = 45.0\text{ V}$ $V_{BE} = 0$

* Pulsed through 25 mH inductor

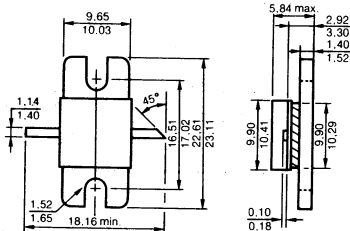
DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o^{**}	350.0	-	-	W	$f = 900\text{ MHz}$ $V_{CE} = 45.0\text{ V}$ $P_i = 60\text{ W}$
P_g	7.6	-	-	dB	$f = 900\text{ MHz}$ $V_{CE} = 45.0\text{ V}$ $P_i = 60\text{ W}$

**Pulse width 25 μs , duty cycle 1%

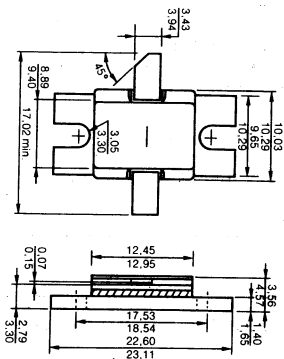
CASE DESCRIPTION

SD 1562-1



CB-407
(.400 SQ 2L FL)

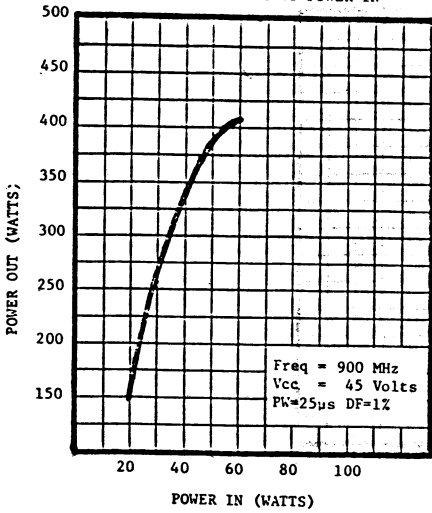
SD 1562-7



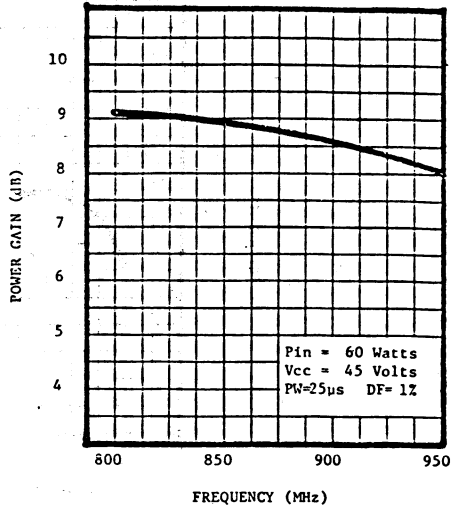
CB-408
(.400 x .500 2L FL HERM)

Dimensions in millimeters

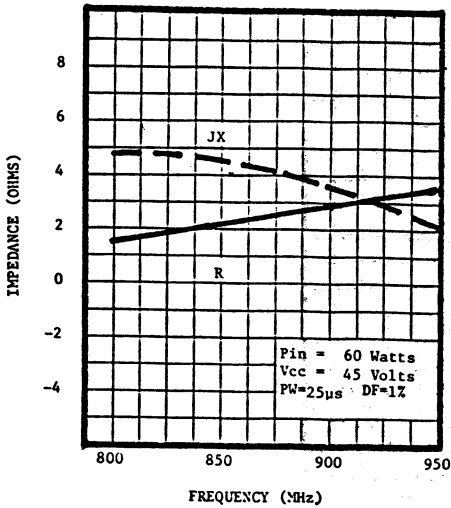
TYPICAL POWER OUT vs POWER IN



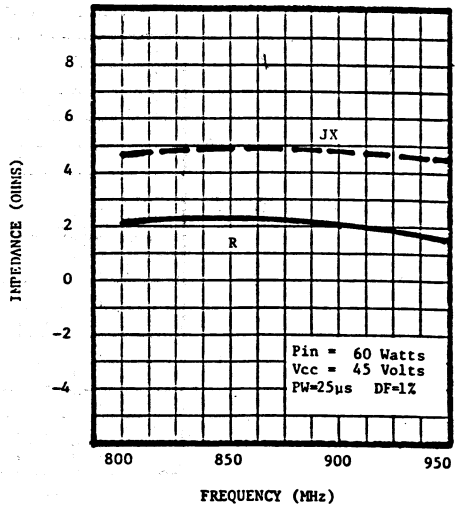
TYPICAL POWER GAIN vs FREQUENCY



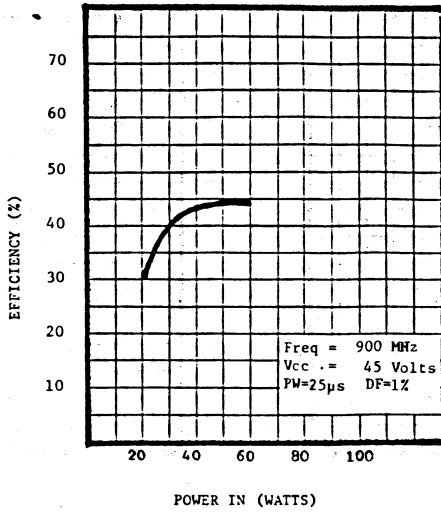
TYPICAL INPUT IMPEDANCE vs FREQUENCY



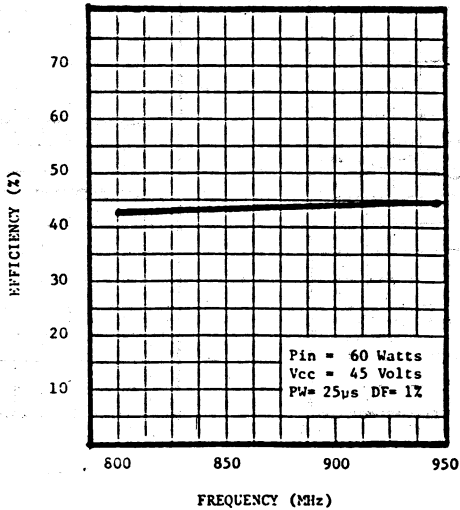
TYPICAL OUTPUT IMPEDANCE vs FREQUENCY



TYPICAL EFFICIENCY vs POWER IN



TYPICAL EFFICIENCY vs FREQUENCY



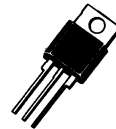
VHF COMMUNICATIONS TRANSISTOR
DESCRIPTION

The SD1574 is an NPN Silicon RF Power Transistor designed specifically for low cost, high performance VHF Communications applications at 12.5 Volts in both commercial and industrial equipments.

FEATURES

- * Designed for 12.5 Volt VHF
- * Low Cost Common-Emitter TO220 package
- * 5.0 Watts (Min.) at 10dB gain
- * Thermal efficiency
- * Withstands 20:1 VSWR (All phases) at rated output power

Power Output	=	5	Watts
Frequency	=	175	MHz
Power Gain	=	10	dB
Voltage	=	12.5	Volts



Case : CB-402 (TO 220)

ABSOLUTE RATINGS	t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage		V_{CBO}	36.0	V
Collector-Emitter Voltage		V_{CEO}	18.0	V
Emitter-Base Voltage		V_{EBO}	4.0	V
Collector Current (Max.)		I_C	1.0	A
Total Device Dissipation @ 25°C		P_{tot}	12.0	W
Storage and Junction Temperature		Tstg Tj	-65 to +150 +200	°C °C

Junction Case Thermal Resistance	$R_{th(J-C)}$	14.6	°C/W
----------------------------------	---------------	------	------

September 1981 - 1/2

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

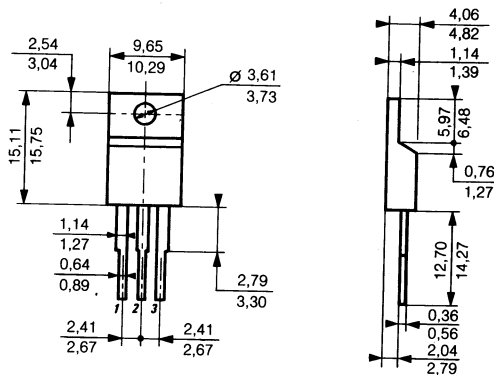
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CEO*}	18.0	-	-	V	$I_C = 10.0mA$ $I_B = 0$
BV_{CES*}	36.0	-	-	V	$I_C = 5.0mA$ $V_{BE} = 0$
BV_{EBO}	4.0	-	-	V	$I_E = 1.0mA$ $I_C = 0$
I_{CBO}	-	-	0.25	mA	$V_{CB} = 15.0V$ $I_E = 0$
h_{FE}	5.0	-	-	-	$V_{CE} = 5.0V$ $I_C = 250mA$

* Pulsed through 25 mH Inductor

DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_O	5.0	-	-	W	$f = 175MHz$ $V_{CE} = 12.5V$
P_g	10.0	-	-	dB	$f = 175MHz$ $V_{CE} = 12.5V$
Z_s		TBD		ohms	$f = 175MHz$ $V_{CE} = 12.5V$ $P_O = 5.0 W$
Z_{c1}		TBD		ohms	$f = 175MHz$ $V_{CE} = 12.5V$ $P_O = 5.0 W$
C_{ob}	-	-	20.0	pF	$f = 1MHz$ $V_{CB} = 15.0V$ $I_E = 0$

CASE DESCRIPTION

CB-402
(TO-220)Dimensions
in millimeters

VHF COMMUNICATIONS TRANSISTOR

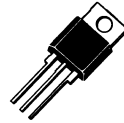
DESCRIPTION

The SD1575 is an NPN Silicon RF Power Transistor designed specifically for low cost, high performance VHF Communications applications at 12.5 Volts in both commercial and industrial equipments.

FEATURES

- * Designed for 12.5 Volt VHF
- * Low Cost Common-Emitter TO220 package
- * 15.0 Watts (Min.) at 6.3dB gain
- * Thermal efficiency
- * Withstands 20:1 VSWR (All phases) at rated output power

Power Output	=	15.0 Watts
Frequency	=	175 MHz
Power Gain	=	6.3 dB
Voltage	=	12.5 Volts



Case : CB-402 (TO 220)

ABSOLUTE RATINGS t case = 25°C	SYMBOLS	VALUES	UNITS
Collector-Base Voltage	V_{CBO}	36.0	V
Collector-Emitter Voltage	V_{CEO}	18.0	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current (Max.)	I_c	2.5	A
Total Device Dissipation @ 25°C	P_{tot}	40.0	W
Storage and Junction Temperature	T_{stg} T_j	-65 to +150 +200	°C °C

Junction Case Thermal Resistance	$R_{th(J-C)}$	4.8	°C/W
----------------------------------	---------------	-----	------

September 1981 - 1/2

ELECTRICAL CHARACTERISTICS $t_{case} = 25^{\circ}C$

STATIC

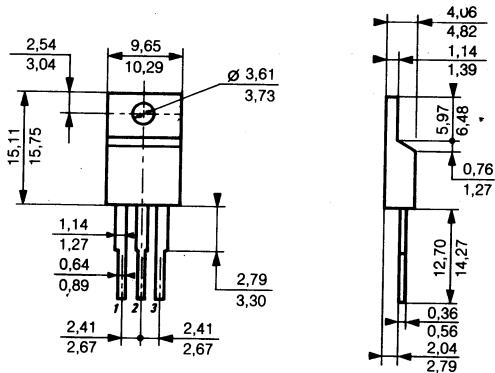
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CEO*}	18.0	-	-	V	$I_C = 20.0mA$ $I_B = 0$
BV_{CES*}	36.0	-	-	V	$I_C = 10.0mA$ $V_{BE} = 0$
BV_{EBO}	4.0	-	-	V	$I_E = 2.0mA$ $I_C = 0$
I_{CBO}	-	-	0.5	mA	$V_{CB} = 15.0V$ $I_E = 0$
h_{FE}	5.0	-	-	-	$V_{CE} = 5.0V$ $I_C = 0.5A$

*Pulsed through 25 mH inductor

DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o	15.0	-	-	W	$f = 175MHz$ $V_{CE} = 12.5V$
P_g	6.3	-	-	dB	$f = 175MHz$ $V_{CE} = 12.5V$
Z_s		TBD		ohms	$f = 175MHz$ $V_{CE} = 12.5V$ $P_o = 15.0W$
Z_{c1}		TBD		ohms	$f = 175MHz$ $V_{CE} = 12.5V$ $P_o = 15.0W$
C_{ob}	-	-	80.0	pF	$f = 1MHz$ $V_{CB} = 15.0V$ $I_E = 0$

CASE DESCRIPTION

Dimensions
in millimetersCB-402
(TO-220)

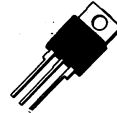
VHF COMMUNICATIONS TRANSISTOR
DESCRIPTION

The SD1576 is an NPN Silicon RF Power Transistor designed specifically for low cost, high performance VHF Communications applications at 12.5 Volts in both commercial and industrial equipments.

FEATURES

- * Designed for 12.5 Volt VHF
- * Low Cost Common-Emitter, TO220 package
- * 30.0 Watts (Min.) at 5.2dB gain
- * Thermal efficiency
- * Withstands 20:1 VSWR (All phases) at rated output power

Power Output	=	30.0 Watts
Frequency	=	175 MHz
Power Gain	=	5.2 dB
Voltage	=	12.5 Volts



Case : CB-402 (TO 220)

ABSOLUTE RATINGS $t_{case} = 25^{\circ}C$	SYMBOLS	VALUES	UNITS
Collector-Base Voltage	V_{CBO}	36.0	V
Collector-Emitter Voltage	V_{CEO}	18.0	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current (Max.)	I_c	6.0	A
Total Device Dissipation @ $25^{\circ}C$	P_{tot}	80.0	W
Storage and Junction Temperature	T_{stg} T_j	-65 to +150 +200	$^{\circ}C$ $^{\circ}C$

Junction Case Thermal Resistance	$R_{th} (J-C)$	2.2	$^{\circ}C/W$
----------------------------------	----------------	-----	---------------

September 1981 - 1/2

ELECTRICAL CHARACTERISTICS $t_{\text{case}} = 25^{\circ}\text{C}$

STATIC

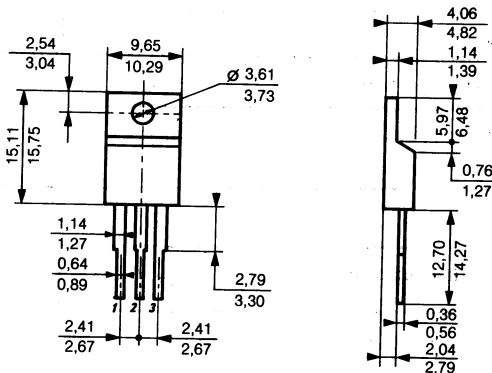
Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
BV_{CEO*}	18.0	-	-	V	$I_C = 20.0\text{mA}$ $I_B = 0$
BV_{CES*}	36.0	-	-	V	$I_C = 20.0\text{mA}$ $V_{BE} = 0$
BV_{EBO}	4.0	-	-	V	$I_E = 5.0\text{mA}$ $I_C = 0$
I_{CBO}	-	-	5.0	mA	$V_{CB} = 15.0\text{V}$ $I_E = 0$
h_{FE}	5.0	-	-	-	$V_{CE} = 5.0\text{V}$ $I_C = 0.5\text{A}$

*Pulsed through 25 mH inductor

DYNAMIC

Symbols	Values			Units	Test Conditions
	Min.	Typ.	Max.		
P_o	30.0	-	-	W	$f = 175\text{MHz}$ $V_{CE} = 12.5\text{V}$
P_E	5.2	-	-	dB	$f = 175\text{MHz}$ $V_{CE} = 12.5\text{V}$
Z_s		TBD		ohms	$f = 175\text{MHz}$ $V_{CE} = 12.5\text{V}$ $P_o = 30.0\text{W}$
Z_{cl}		TBD		ohms	$f = 175\text{MHz}$ $V_{CE} = 12.5\text{V}$ $P_o = 30.0\text{W}$
C_{ob}	-	-	130.0	pF	$f = 1\text{MHz}$ $V_{CB} = 15.0\text{V}$ $I_E = 0$

CASE DESCRIPTION

Dimensions
in millimetersCB-402
(TO-220)