DATA SHEET

NEC
ELECTRON DEVICE

SILICON TRANSISTOR
2SB1475

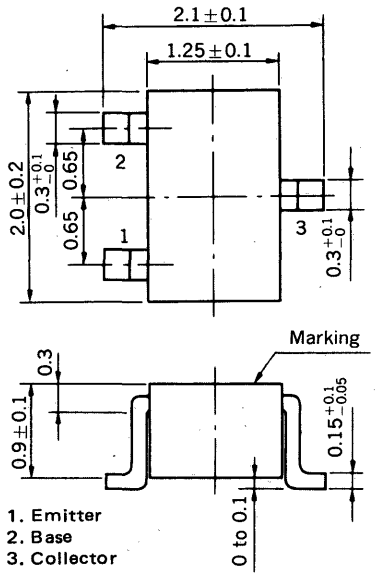
PNP SILICON EPITAXIAL TRANSISTOR
AUDIO FREQUENCY AMPLIFIER

DESCRIPTION

2SB1475 is designed for audio frequency amplifier and switching application, especially in VCR cameras and headphone stereos.

PACKAGE DIMENSIONS

in millimeters



FEATURES

- Super Miniature Package
- High DC Current $I_{C(DC)}$ = −500 mA MAX.
- Low $V_{CE(sat)}$ · $V_{CE(sat)}$ = −60 mV at −100 mA

QUALITY GRADE

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current (T_a = 25 °C)			
Collector to Base Voltage	V_{CBO}	−25	V
Collector to Emitter Voltage	V_{CEO}	−16	V
Emitter to Base Voltage	V_{EBO}	−6	V
Collector Current (DC)	I_C	−500	mA
Maximum Power Dissipation			
Total Power Dissipation at 25 °C Ambient Temperature	P_T	150	mW
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			−100	nA	V_{CB} = −16 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			−100	nA	V_{EB} = −6.0 V, I_C = 0
DC Current Gain	h_{FE1} *	110	200	400	−	V_{CE} = −1.0 V, I_C = −100 mA
DC Current Gain	h_{FE2} *	100			−	V_{CE} = −1.0 V, I_C = −500 mA
Collector Saturation Voltage	$V_{CE(sat1)}$ *		−60	−120	mV	I_C = −100 mA, I_B = −10 mA
Collector Saturation Voltage	$V_{CE(sat2)}$ *		−250	−400	mV	I_C = −500 mA, I_B = −20 mA
Base Saturation Voltage	$V_{BE(sat)}$ *		−0.95	−1.2	V	I_C = −2.0 A, I_B = −0.1 A
Base to Emitter Voltage	V_{BE} *	−0.6	−0.66	−0.7	V	V_{CE} = −1.0 V, I_C = −10 mA
Gain Bandwidth Product	f_T	50			MHz	V_{CE} = −3.0 V, I_E = 100 mA
Output Capacitance	C_{ob}			15	pF	V_{CB} = −10 V, I_E = 0, f = 1.0 MHz

* Pulsed: PW ≦ 350 μs, Duty Cycle ≦ 2 %

h_{FE} Classification

MARKING	B42	B43	B44
h_{FE}	110 to 240	190 to 320	270 to 400

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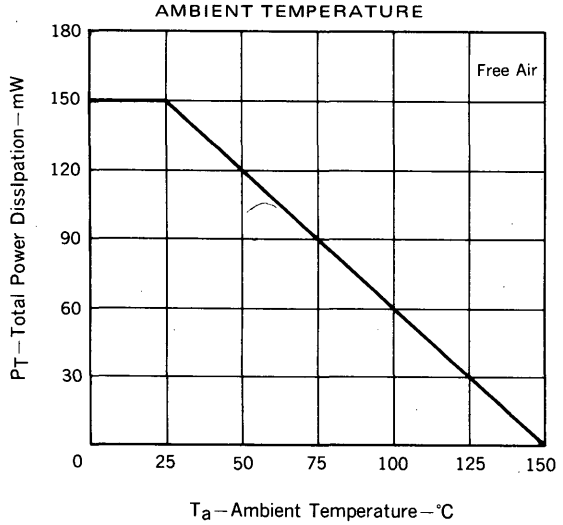
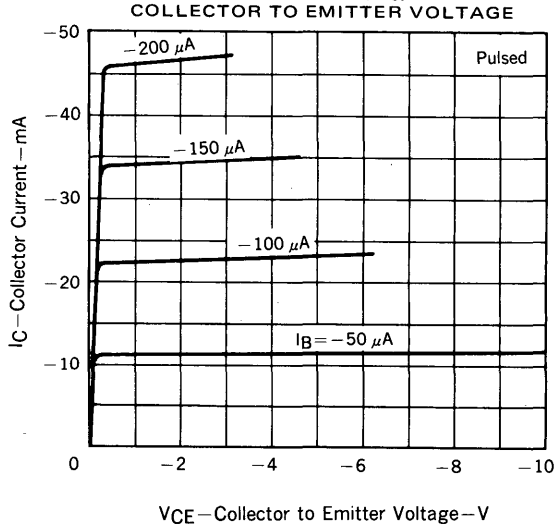
TYPICAL CHARACTERISTICS (T_a = 25 °C)

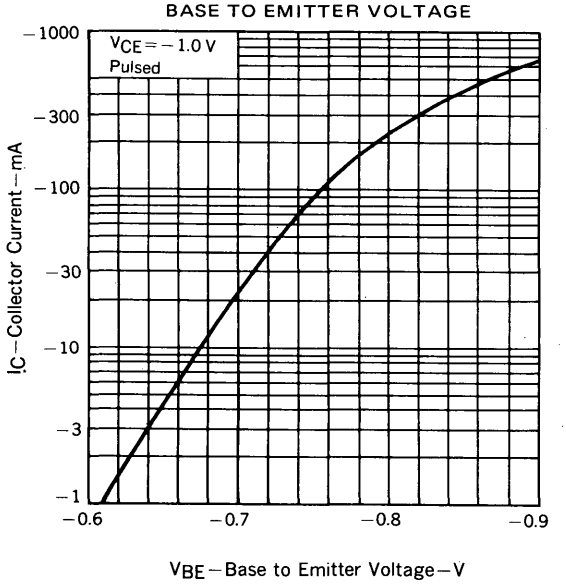
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



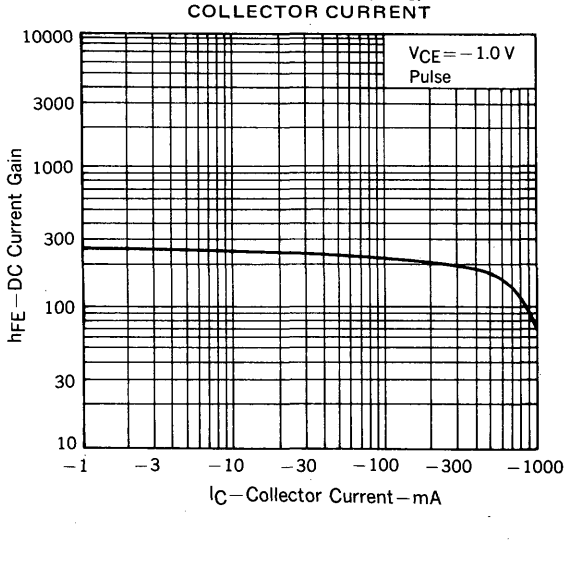
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



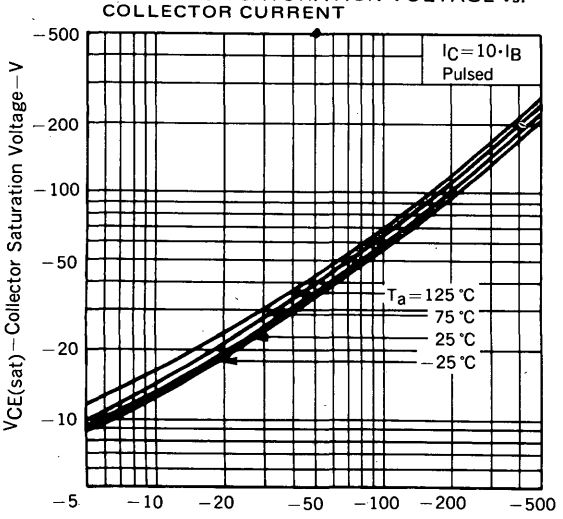
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



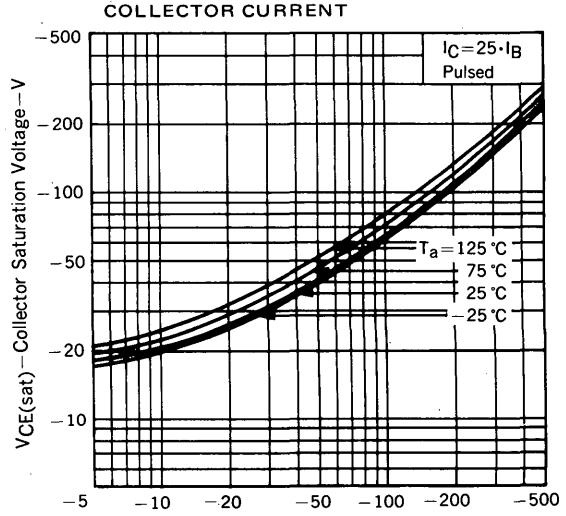
DC CURRENT GAIN vs. COLLECTOR CURRENT



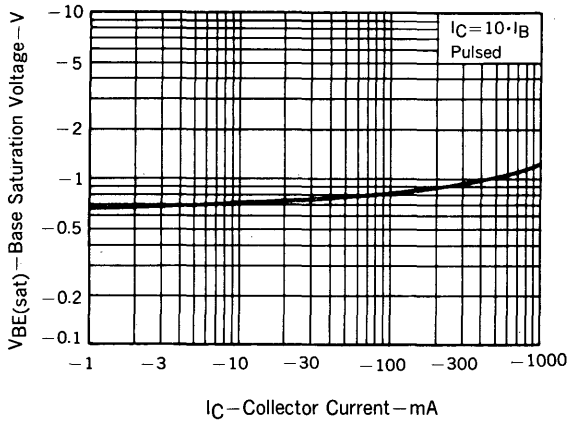
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



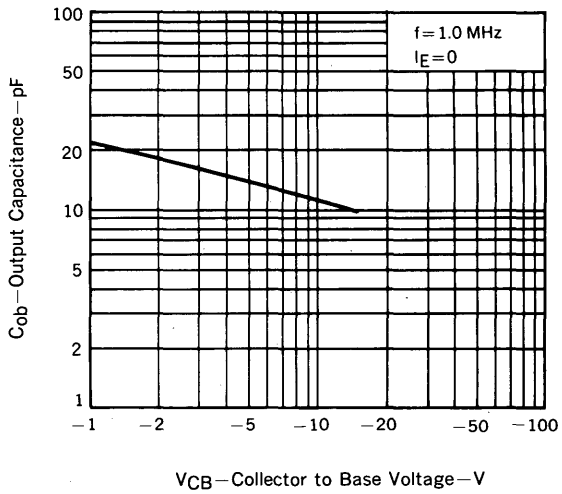
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



BASE SATURATION VOLTAGE vs.
COLLECTOR CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE



RECOMMENDED SOLDERING CONDITIONS

Mounting of this product by soldering should be done under the following conditions.
Please consult our representatives about soldering methods and conditions other than these.

SURFACE MOUNT TYPE

For details of the recommended soldering conditions, see the information document "SMT MANUAL" (IEI-1207).

Soldering Method	Soldering Conditions	Symbol for Recommended Conditions
Infrared Reflow	Package peak temp.: 230 °C Soldering time: within 30 sec (above 210 °C) Soldering times: 1, Days limitation: none*	IR30-00
Vapor Phase Soldering	Package peak temp.: 215 °C Soldering time: within 40 sec (above 200 °C) Soldering times: 1, Days limitation: none*	VP15-00
Wave Soldering	Soldering bath temp.: below 260 °C Soldering time: within 10 sec Soldering times: 1, Days limitation: none*	WS60-00

*: Stored days under storage conditions at 25 °C and below 65 % R.H. after the dry-pack has been opened.

Note 1 Combination of soldering methods should be avoided.

[MEMO]