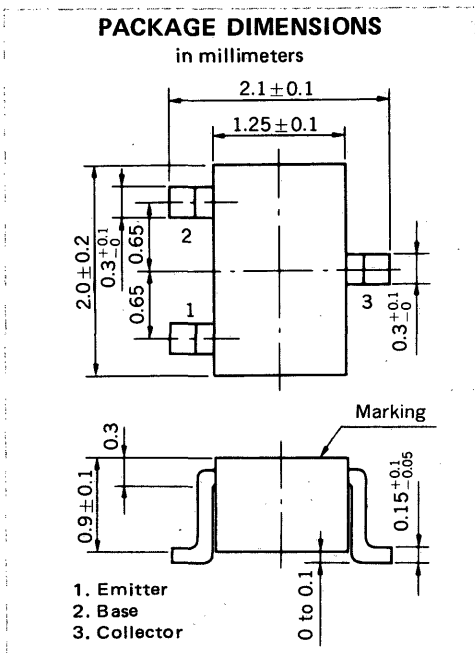


PNP SILICON EPITAXIAL TRANSISTOR
AUDIO FREQUENCY AMPLIFIER

DESCRIPTION

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



FEATURES

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

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 ($T_a = 25^\circ \text{C}$)

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	$^\circ \text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ \text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ \text{C}$)

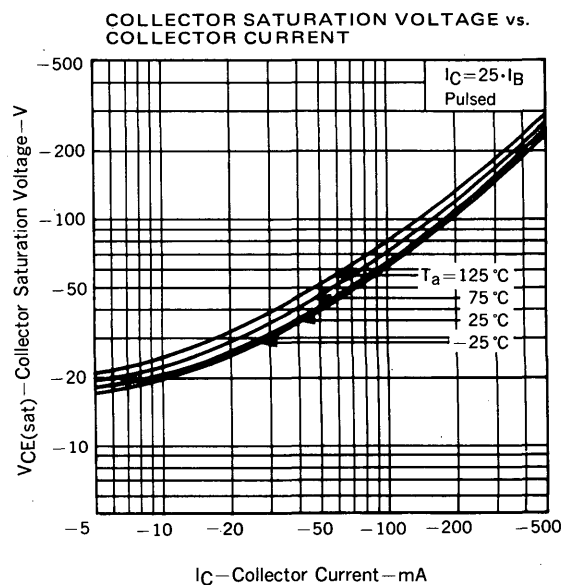
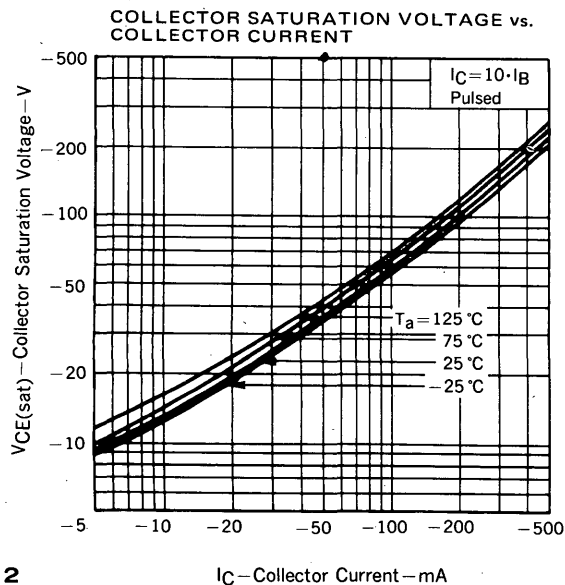
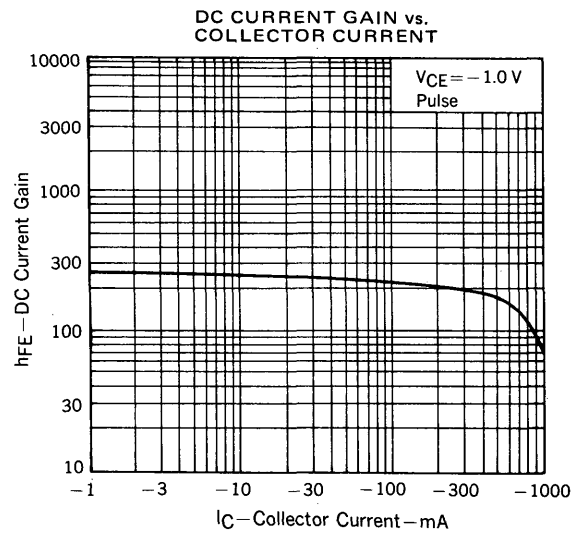
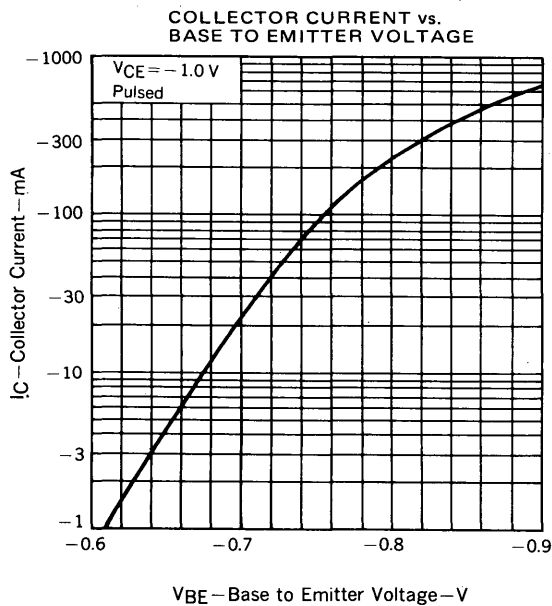
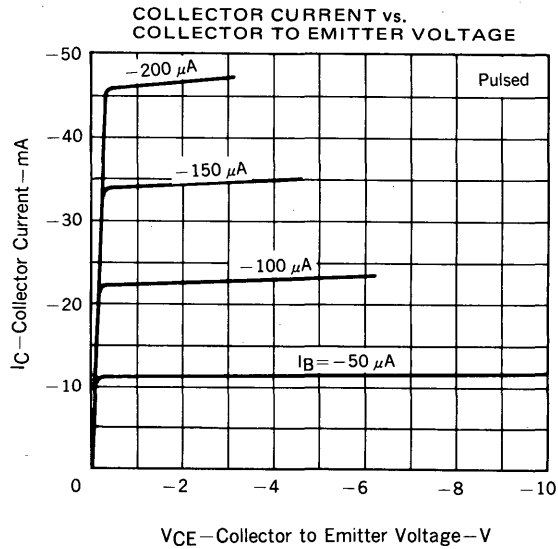
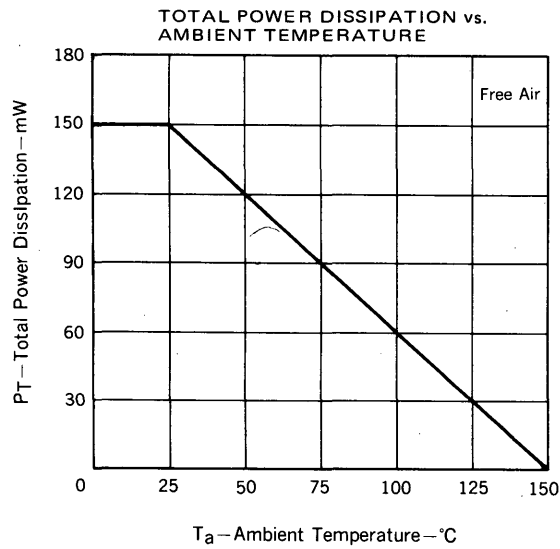
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-100	nA	$V_{CB} = -16 \text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			-100	nA	$V_{EB} = -6.0 \text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^*	110	200	400	-	$V_{CE} = -1.0 \text{ V}, I_C = -100 \text{ mA}$
DC Current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

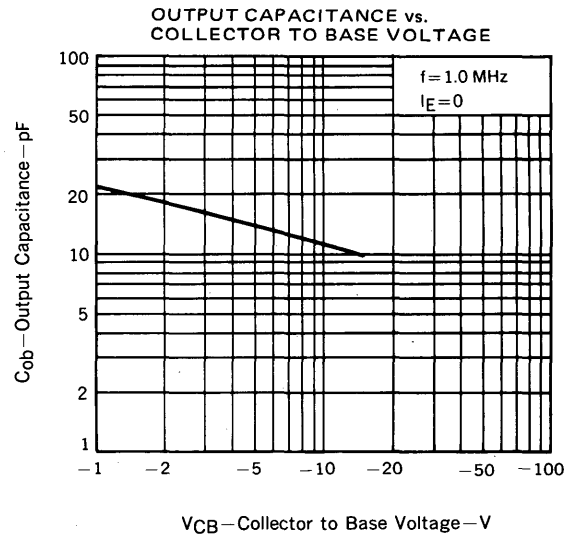
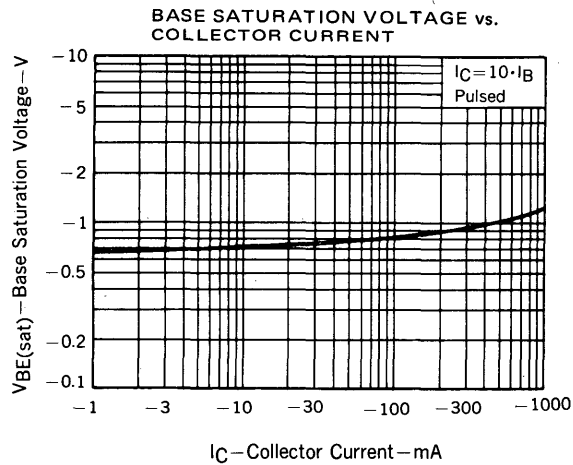
* Pulsed: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

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

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





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]

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The devices listed in this document are not suitable for use in the field where very high reliability is required including, but not limited to, aerospace equipment, submarine cables, nuclear reactor control systems and life support systems. If customers intend to use NEC devices for above applications or those intended to use "Standard", or "Special" quality grade NEC devices for the applications not intended by NEC, please contact our sales people in advance.

Application examples recommended by NEC Corporation

Standard: Data processing and office equipment, Communication equipment (terminal, mobile), Test and Measurement equipment, Audio and Video equipment, Other consumer products, etc.

Special: Automotive and Transportation equipment, Communication equipment (trunk line), Train and Traffic control devices, industrial robots, Burning control systems, antidisaster systems, anticrime systems etc.