

SILICON TRANSISTOR

2SC2780

NPN SILICON EPITAXIAL TRANSISTOR

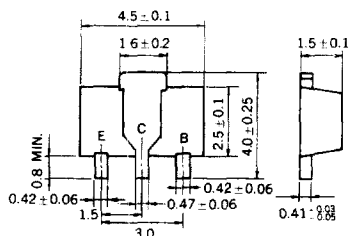
POWER MINI MOLD

DESCRIPTION

The 2SC2780 is designed for audio frequency preamplifier application, especially in Hybrid Integrated Circuits.

PACKAGE DIMENSIONS

in millimeters



1. Emitter
2. Collector
3. Base

SOT-89

FEATURES

- World Standard Miniature Package
: SOT-89
- High Collector to Emitter Voltage
: $V_{CE0} > 140$ V
- Complements to PNP type 2SA1173

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

Maximum Voltages and Currents

Collector to Base Voltage	V_{CBO}	140	V
Collector to Emitter Voltage	V_{CEO}	140	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	I_C	50	mA
Collector Current (Pulse)*	I_C	100	mA

Maximum Power Dissipation

Total Power Dissipation at 25°C Ambient Temperature**	P_T	2.0	W
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Maximum Temperatures

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

* $PW \leq 10$ ms, duty cycle $\leq 50\%$

**When mounted on ceramic substrate of $2.5\text{ cm}^2 \times 0.7\text{ mm}$

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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 140\text{ V}$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 5.0\text{ V}$, $I_C = 0$
DC Current Gain	h_{FE1}	50	180			$V_{CE} = 10\text{ V}$, $I_C = 1.0\text{ mA}$ ***
DC Current Gain	h_{FE2}	90	200	400		$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$ ***
Collector Saturation Voltage	$V_{CE(sat)}$		0.07	0.60	V	$I_C = 20\text{ mA}$, $I_B = 2.0\text{ mA}$ ***
Base Saturation Voltage	$V_{BE(sat)}$		0.75	1.0	V	$I_C = 20\text{ mA}$, $I_B = 2.0\text{ mA}$ ***
Base to Emitter Voltage	V_{BE}	650	685	750	mV	$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$ ***
Gain Bandwidth Product	f_T		120		MHz	$V_{CE} = 10\text{ V}$, $I_E = -10\text{ mA}$
Output Capacitance	C_{ob}		2.3		pF	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$

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

h_{FE} Classification

MARKING	NM	NL	NK
h_{FE2}	90 - 180	135 - 270	200 - 400

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

