

NPN SILICON TRANSISTORS 2SC3478, 2SC3478A

DESCRIPTION The 2SC3478/3478A is designed for general-purpose applications requiring high Breakdown Voltages.

FEATURES

- High Breakdown Voltage.
 $V_{CEO} = 180\text{ V}/200\text{ V}$ (2SC3478/2SC3478A)
- Good h_{FE} linearity.
- A complementary pair with 2SA1376/2SA1376A.

ABSOLUTE MAXIMUM RATINGS

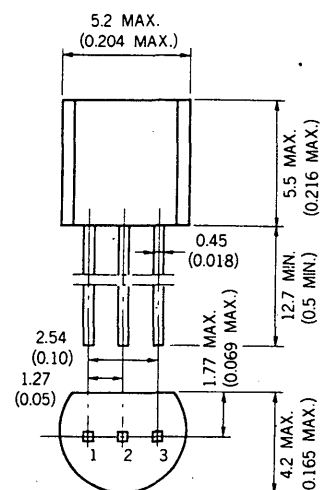
Maximum Temperatures
 Storage Temperature -55 to $+150\text{ }^{\circ}\text{C}$
 Junction Temperature $150\text{ }^{\circ}\text{C}$ Maximum
 Maximum Power Dissipation ($T_a = 25\text{ }^{\circ}\text{C}$)
 Total Power Dissipation 750 mW
 Maximum Voltages and Currents ($T_a = 25\text{ }^{\circ}\text{C}$)

2SC3478/2SC3478A

V_{CBO}	Collector to Base Voltage	200	V
V_{CEO}	Collector to Emitter Voltage . .	180/200	V
V_{EBO}	Emitter to Base Voltage	5.0	V
I_C	Collector Current (DC)	100	mA
I_C	Collector Current (pulse)*	200	mA
I_B	Base Current (DC)	20	mA

*PW $\leq 10\text{ ms}$, Duty Cycle $\leq 50\%$

PACKAGE DIMENSIONS in millimeters (inches)



1. EMITTER EIAJ : SC-43B
 2. COLLECTOR JEDEC : TO-92
 3. BASE IEC : PA33

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

2SC3478/2SC3478A

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	135		400/600	—	$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$
t_{on}	Turn-on Time		0.15		μs	$I_C = 10\text{ mA}$
t_{off}	Turn-off Time		1.6		μs	$I_{B1} = -I_{B2} = 1\text{ mA}$, $V_{CC} = 10\text{ V}$
f_T	Gain Bandwidth Product	100	150		MHz	$V_{CE} = 10\text{ V}$, $I_E = -10\text{ mA}$
C_{ob}	Output Capacitance		2.6	3.5	pF	$V_{CB} = 30\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$
I_{CBO}	Collector Cutoff Current			100	nA	$V_{CB} = 200\text{ V}$, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			100	nA	$V_{EB} = 4.0\text{ V}$, $I_C = 0$
V_{BE}	Base to Emitter Voltage	600	660	700	mV	$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$
$V_{CE(sat)}$	Collector Saturation Voltage		0.1	0.3	V	$I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$
$V_{BE(sat)}$	Base Saturation Voltage		0.8	1.2	V	$I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$

Classification of h_{FE}

Rank	L	K	U**
Range	135 — 270	200 — 400	300 — 600

Test Conditions: $V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$

** 2SC3478A has no U rank.

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

