

NPN SILICON TRANSISTORS 2SC3478, 2SC3478A

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

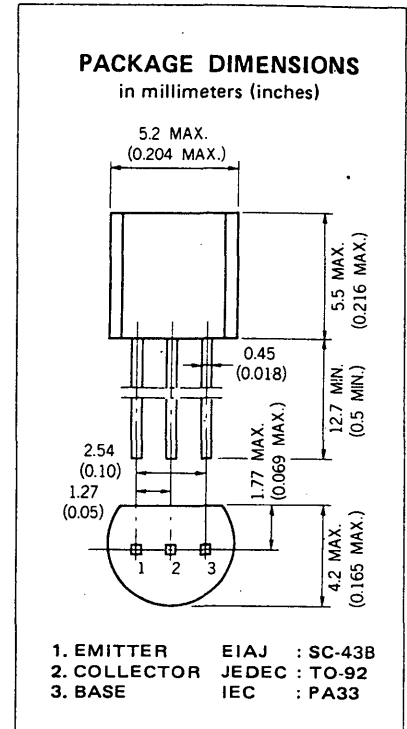
- FEATURES**
- High Breakdown Voltage.
 $V_{CEO} = 180 \text{ V}/200 \text{ V}$ (2SC3478/2SC3478A)
 - Good h_{FE} linearity.
 - A complementary pair with 2SA1376/2SA1376A.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures
 Storage Temperature -55 to $+150$ °C
 Junction Temperature 150 °C Maximum
 Maximum Power Dissipation ($T_a = 25$ °C)
 Total Power Dissipation 750 mW
 Maximum Voltages and Currents ($T_a = 25$ °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 ≤ 10 ms, Duty Cycle ≤ 50 %



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

