

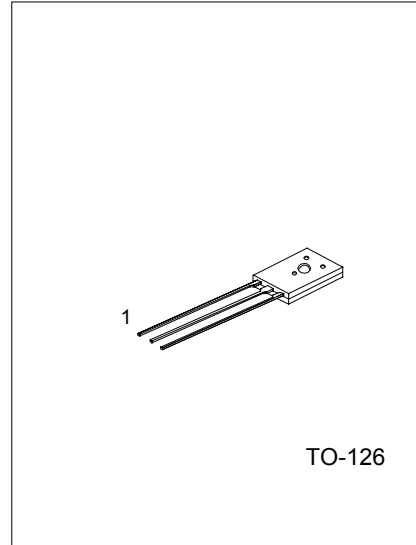
# UTC BD136/138/140 PNP EPITAXIAL SILICON TRANSISTOR

## PNP SILICON TRANSISTOR

### DESCRIPTION

The UTC BD136/BD138/BD140 are silicon epitaxial planer PNP transistor, designed for use as audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

The complementary NPN types are the BD135/BD137/BD139.



TO-126

1:EMITTER 2:COLLECTOR 3:BASE

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	-45	V
BD136		-60	
BD138 BD140		-80	
Collector-Emitter Voltage	$V_{CEO}$	-45	V
BD136		-60	
BD138 BD140		-80	
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-1.5	V
Collector Peak Current	$I_{CM}$	-3	A
Base Current	$I_B$	-0.5	A
Total Dissipation	$P_{tot}$	( $T_c \cong 25^\circ\text{C}$ )	12.5
		( $T_a \cong 25^\circ\text{C}$ )	1.25
Storage Temperature	$T_{stg}$	-65 ~ 150	$^\circ\text{C}$
Operating Junction Temperature	$T_j$	150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance, Junction-case	$\theta_{jc}$	10	$^\circ\text{C/W}$
Thermal Resistance, Junction-ambient	$\theta_{JA}$	100	$^\circ\text{C/W}$

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### ELECTRICAL CHARACTERISTICS (T<sub>C</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Sustaining Voltage BD136 BD138 BD140	V <sub>CE0(sus)</sub> *	I <sub>C</sub> = -30 mA, I <sub>B</sub> = 0	-45 -60 -80			V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = -30 V, I <sub>E</sub> = 0 V <sub>CB</sub> = -30 V, I <sub>E</sub> = 0, T <sub>C</sub> = 125°C			-0.1 -10	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0			-10	μA
DC Current Gain	h <sub>FE1</sub> h <sub>FE2</sub> h <sub>FE3</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -5 mA, V <sub>CE</sub> = -2V, I <sub>C</sub> = -0.5A, V <sub>CE</sub> = -2V, I <sub>C</sub> = -150 mA,	25 25 40		250	
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> = -0.5 A, I <sub>B</sub> = -0.05 A			-0.5	V
Base-Emitter Voltage	V <sub>BE</sub> *	I <sub>C</sub> = -0.5 A, V <sub>CE</sub> = -2 V			-1	V

\* Pulsed: Pulse duration ≅ 300 μs, duty cycle 1.5 %

### CLASSIFICATION OF h<sub>FE3</sub>

RANK	-6	-10	-16
RANGE	40~100	63~160	100~250

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