

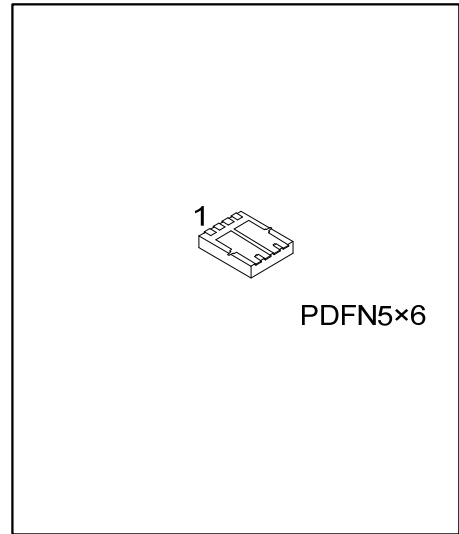


## BD2378

Preliminary

DUAL TRANSISTOR

### COMPLEMENTARY NPN/PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR



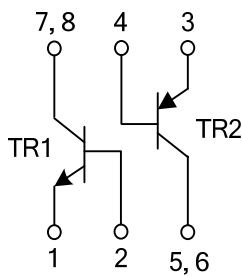
#### DESCRIPTION

The UTC **BD2378** is a complementary NPN/PNP small signal surface mount transistor. It's suitable for low power amplification and switch.

#### FEATURES

- \* Epitaxial Planar Die Construction
- \* Extremely-Small Surface Mount Package

#### EQUIVALENT CIRCUIT



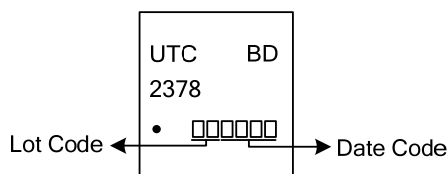
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
BD2378L-P5060-R	BD2378G-P5060-R	PDFN5x6	E1	B1	E2	B2	C2	C2	C1	C1	Tape Reel

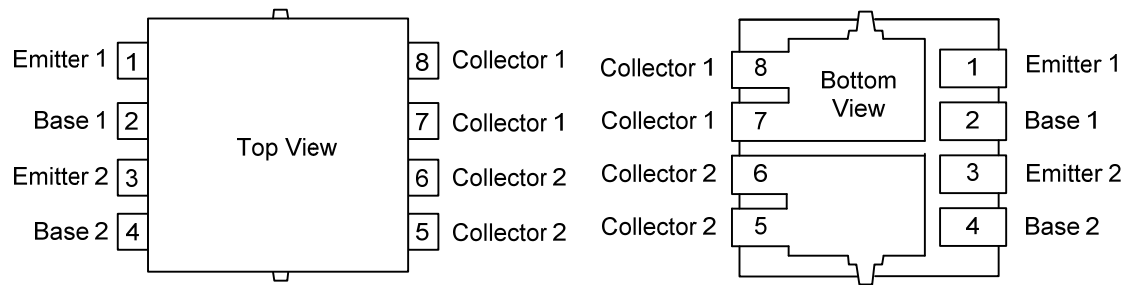
Note: Pin Assignment: G: Gate D: Drain S: Source

BD2378G-P5060-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) P5060: PDFN5x6
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

#### MARKING



### ■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified.)

## TR1

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CBO}$	100	V
Collector-Emitter Voltage	$V_{CEO}$	80	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Continuous Collector Current	$I_C$	2	A
Collector Dissipation	$P_C$	1.25	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

## TR2

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CBO}$	-100	V
Collector-Emitter Voltage	$V_{CEO}$	-80	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-2	A
Collector Power Dissipation	$P_C$	1.25	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified.)

## TR1

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=1\text{mA}, I_E=0$	100			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=100\text{mA}, I_B=0$	80			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=1\text{mA}, I_C=0$	5			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=100\text{V}, I_E=0$			100	$\mu\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			1	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=100\text{mA}$			0.6	V
DC Current Gain	$h_{FE(1)}$	$I_C=150\text{mA}, V_{CE}=2\text{V}$	40			
	$h_{FE(2)}$	$I_C=1\text{A}, V_{CE}=2\text{V}$	25			
Transition Frequency	$f_T$	$I_C=250\text{mA}, V_{CE}=10\text{V}, f=10\text{MHz}$	3			MHz

## TR2

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-1\text{mA}, I_E=0$	-100			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-100\text{mA}, I_B=0$	-80			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_C=-1\text{mA}, I_E=0$	-5			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-100\text{V}, I_E=0$			-100	$\mu\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-1	mA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-2\text{V}, I_C=-150\text{mA}$	40			
	$h_{FE(2)}$	$V_{CE}=-2\text{V}, I_C=-1\text{A}$	25			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-1\text{A}, I_B=-100\text{mA}$			-0.6	V
Transition Frequency	$f_T$	$V_{CE}=-10\text{V}, I_C=-250\text{mA}, f=10\text{MHz}$	3			MHz

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.