

**UNP5353**

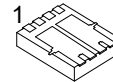
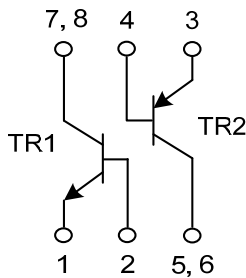
Preliminary

DUAL TRANSISTOR**NPN/PNP HIGH POWER
DOUBLE BIPOLAR
TRANSISTORS****DESCRIPTION**

The UTC **UNP5353** is a NPN/PNP high power double bipolar transistor.

FEATURES

- * High thermal power dissipation capability
- * High energy efficiency due to less heat generation

SYMBOL

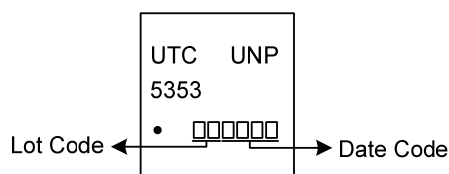
PDFN5×6

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UNP5353L-P5060-R	UNP5353G-P5060-R	PDFN5×6	E1	B1	E2	B2	C2	C2	C1	C1	Tape Reel

Note: Pin Assignment: E: Emitter B: Base C: Collector

UNP5353G-P5060-R	(1) Packing Type	(1) R: Tape Reel
	(2) Package Type	(2) P5060: PDFN5×6
	(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

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

PARAMETER	SYMBOL	RATINGS		UNIT
		TR1	TR2	
Collector-Base Voltage	V_{CBO}	100	-100	V
Collector-Emitter Voltage	V_{CEO}	100	-100	V
Emitter-Base Voltage	V_{EBO}	7	-7	V
Collector Current (DC)	I_C	3	-3	A
Peak Collector Current	I_{CM}	8	-8	A
Base Current	I_B	0.5	-0.5	A
Power Dissipation	P_D	1		W
Junction Temperature	T_J	+150		$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +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.

■ **THERMAL DATA**

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	125	K/W

Note: Device mounted on an FR4 printed-circuit board.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
TR1 (NPN)						
Collect-Base Cut-off Current	I_{CBO}	$V_{CB}=80\text{V}, I_E=0\text{A}$			100	nA
Collect-Emitter Cut-off Current	I_{CES}	$V_{CB}=80\text{V}, V_{BE}=0\text{V}$			100	nA
Emitter-Base Cut-off Current	I_{EBO}	$V_{EB}=7\text{V}, I_C=0\text{A}$			100	nA
DC Current Gain (Note)	h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	150			
		$V_{CE}=10\text{V}, I_C=1\text{A}$	80			
		$V_{CE}=10\text{V}, I_C=2\text{A}$	20			
		$V_{CE}=10\text{V}, I_C=3\text{A}$	10			
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=1\text{A}, I_B=50\text{mA}$			150	mV
		$I_C=3\text{A}, I_B=0.3\text{A}$			330	mV
Base -Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	$I_C=1\text{A}, I_B=50\text{mA}$			1	V
		$I_C=2\text{A}, I_B=200\text{mA}$			1.2	V
Base -Emitter Turn-On Voltage (Note)	$V_{BE(ON)}$	$V_{CE}=2\text{V}, I_C=100\text{mA}$			0.85	V
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_C=100\text{mA}, f=100\text{MHz}$		140		MHz
Collect Capacitance	C_C	$V_{CB}=10\text{V}, I_E=0\text{A}, i_e=0\text{A}, f=1\text{MHz}$		11		pF

Note: Pulse test: $t_p \leq 300 \mu\text{s}$

■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
TR2 (PNP)						
Collect-Base Cut-off Current	I_{CBO}	$V_{CB}=-80V, I_E=0$			-100	nA
Collect-Emitter Cut-off Current	I_{CES}	$V_{CB}=-80V, V_{BE}=0V$			-100	nA
Emitter-Base Cut-off Current	I_{EBO}	$V_{EB}=-7V, I_C=0A$			-100	nA
DC Current Gain (Note)	h_{FE}	$V_{CE}=-10V, I_C=-500mA$	150			
		$V_{CE}=-10V, I_C=-1A$	80			
		$V_{CE}=-10V, I_C=-2A$	20			
		$V_{CE}=-10V, I_C=-3A$	10			
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=-500mA, I_B=-50mA$			-110	mV
		$I_C=-2A, I_B=-0.2A$			-360	mV
Base -Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	$I_C=-1A, I_B=-50mA$			-1	V
		$I_C=-2A, I_B=-200mA$			-1.2	V
Base -Emitter Turn-On Voltage (Note)	$V_{BE(ON)}$	$V_{CE}=-2V, I_C=-100mA$			-0.9	V
Transition Frequency	f_T	$V_{CE}=-10V, I_C=-100mA, f=100MHz$		125		MHz
Collect Capacitance	C_C	$V_{CB}=-10V, I_E=0A, i_e=0A, f=1MHz$		30		pF

Note: Pulse test: $t_p \leq 300 \mu s$; $\delta \leq 0.02$.

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