



# UP1753

## NPN SILICON TRANSISTOR

### HIGH CURRENT LOW $V_{CE(SAT)}$ TRANSISTOR

■ DESCRIPTION

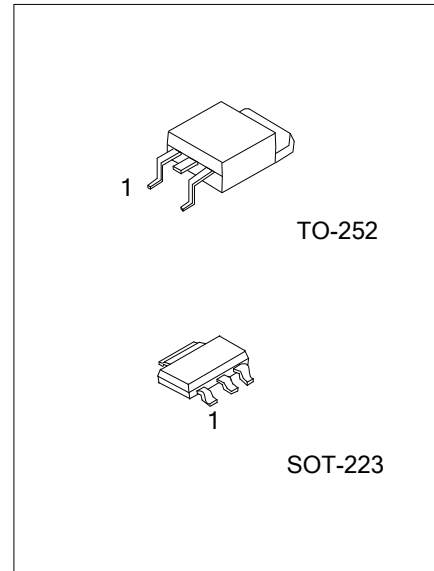
The UTC **UP1753** is specially designed to have high current and low  $V_{CE(SAT)}$  to suit for power amplifier application and power switching application.

■ FEATURES

\* $V_{CE(SAT)}$  typ is below 300mV at 5A

\* Max continuous current 6 A

\*  $BV_{CEO}$  is 100V minimum



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UP1753L-AA3-R	UP1753G-AA3-R	SOT-223	B	C	E	Tape Reel
UP1753L-TN3-T	UP1753G-TN3-T	TO-252	B	C	E	Tube
UP1753L-TN3-R	UP1753G-TN3-R	TO-252	B	C	E	Tape Reel

<p>UP1753G-AA3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel, T: Tube (2) AA3: SOT-223, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-223	TO-252
<p>UP1753 □ □ □ □ □ □ □ 1</p> <p>L: Lead Free G: Halogen Free Date Code</p>	<p>UTC UP1753 □ □ □ □ □ □ □ 1</p> <p>Lot Code ← L: Lead Free G: Halogen Free Date Code</p>

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	200	V
Collector-Emitter Voltage		$V_{CEO}$	100	V
Emitter-Base Voltage		$V_{EBO}$	6	V
Peak Pulse Current		$I_{CM}$	10	A
Continuous Collector Current		$I_C$	6	A
Collector Power Dissipation	$T_A=25^\circ\text{C}$	SOT-223	0.8	W
		TO-252	1	W
	$T_C=25^\circ\text{C}$ (Note)	SOT-223	2	W
		TO-252	25	W
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Notes: 1. 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.

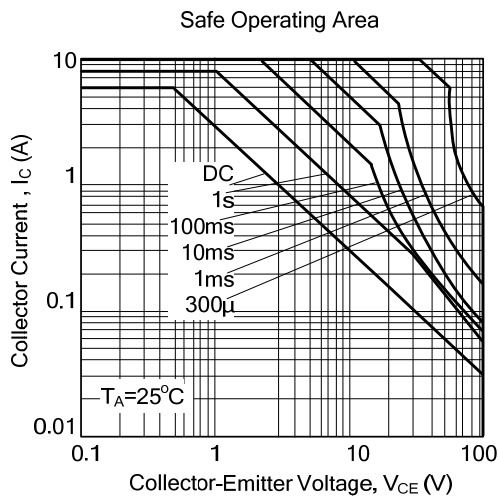
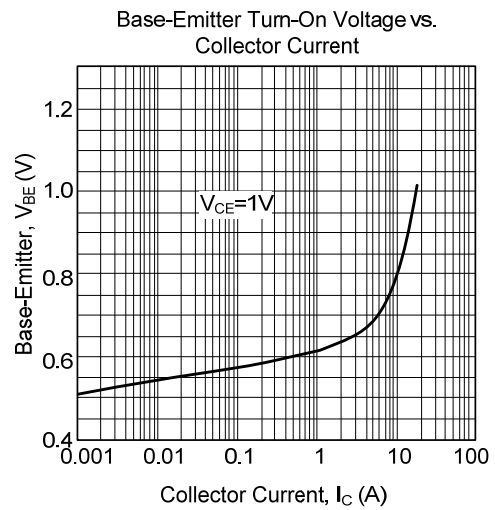
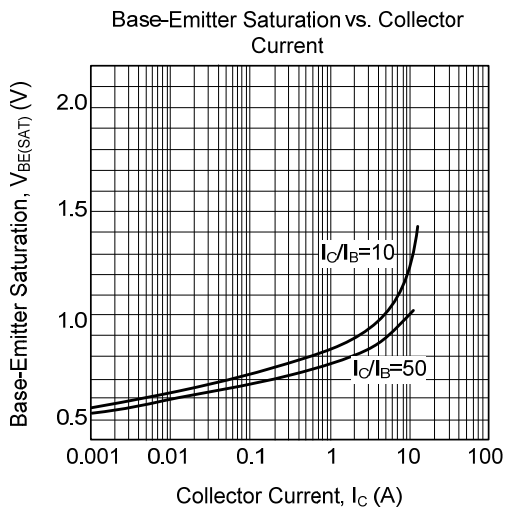
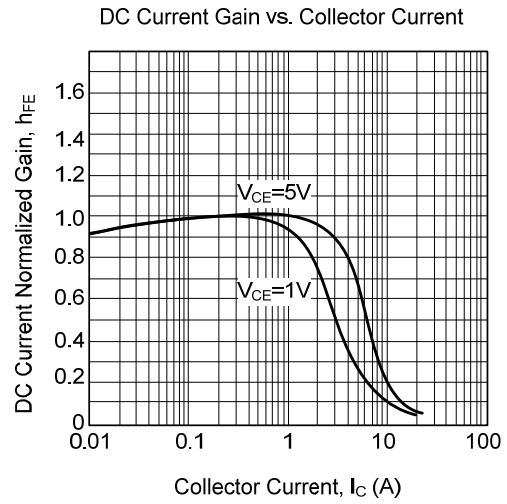
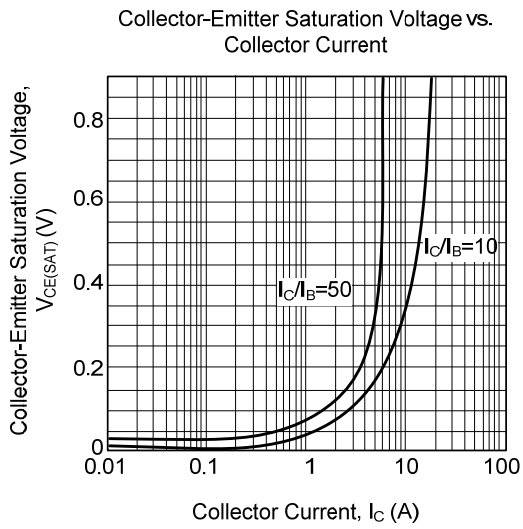
2. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=100\mu\text{A}$	200	300		V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=10\text{mA}$ (Note1)	100	120		V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=100\mu\text{A}$	6	8		V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=150\text{V}$			10	nA
Collector Cut-Off Current	$I_{CER}$	$V_{CE}=150\text{V}$ , $R\leq 1\text{K}\Omega$			10	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=6\text{V}$			10	nA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=0.1\text{A}$ , $I_B=5\text{mA}$ (Note1)			50	mV
		$I_C=2\text{A}$ , $I_B=100\text{mA}$ (Note1)			150	
		$I_C=5\text{A}$ , $I_B=500\text{mA}$ (Note1)			330	
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=5\text{A}$ , $I_B=500\text{mA}$ (Note1)			1250	mV
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$I_C=5\text{A}$ , $V_{CE}=2\text{V}$ (Note1)			1100	mV
Static Forward Current Transfer Ratio	$h_{FE}$	$I_C=10\text{mA}$ , $V_{CE}=2\text{V}$	100	200		
		$I_C=2\text{A}$ , $V_{CE}=2\text{V}$ (Note1)	100	200	300	
		$I_C=4\text{A}$ , $V_{CE}=2\text{V}$ (Note1)	50	100		
		$I_C=10\text{A}$ , $V_{CE}=2\text{V}$ (Note1)	20			
Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$		38		pF
Rise Time	$t_R$	$I_C\leq 500\text{mA}$ , $I_{B1}=I_{B2}=10\text{mA}$		60		ns
Storage Time	$t_S$			2000		ns
Fall Time	$t_F$			70		ns

Note: 1. Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ ,

### TYPICAL CHARACTERISTICS



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