



## UP1753

## NPN SILICON TRANSISTOR

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

#### DESCRIPTION

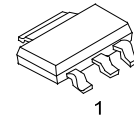
The UTC **UP1753** is specially designed to have high current and low  $V_{CE(SAT)}$  to suit for power amplifier application and power switching application.

#### FEATURES

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

\* Max continuous current 6 A

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



SOT-223

#### 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

<p>UP1753L-AA3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel</p> <p>(2) AA3: SOT-223</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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### ■ 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
Power Dissipation ( $T_A = 25^\circ\text{C}$ )	$P_D$	3	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

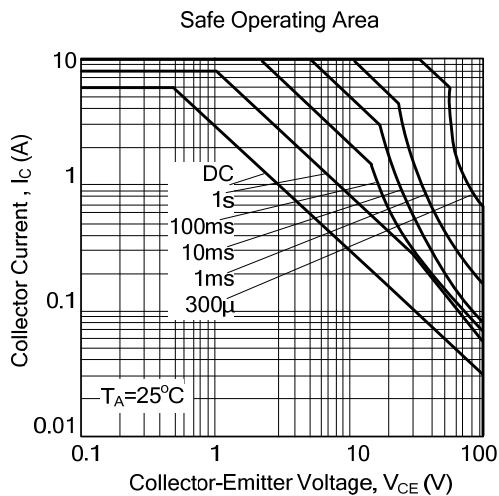
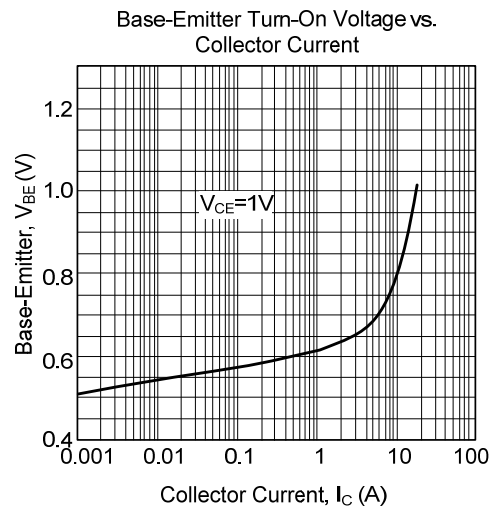
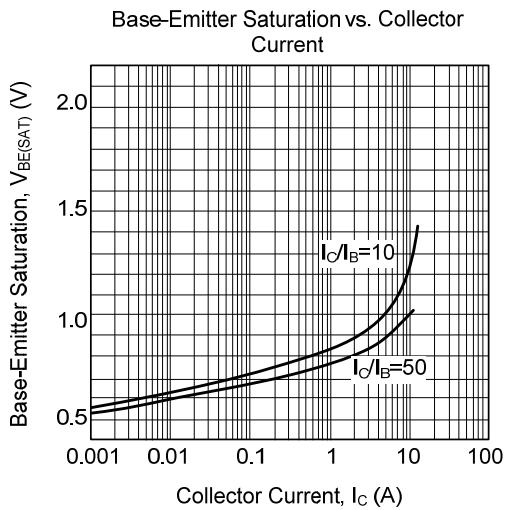
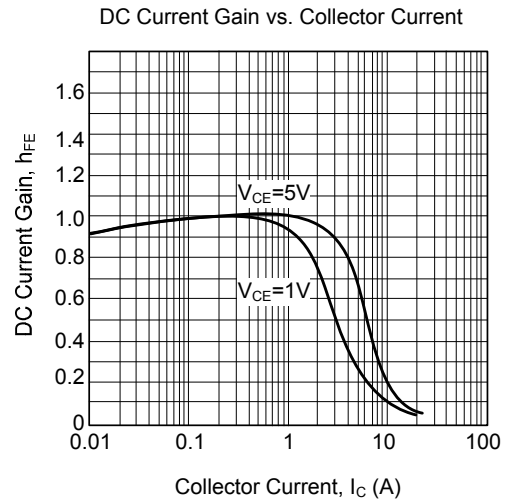
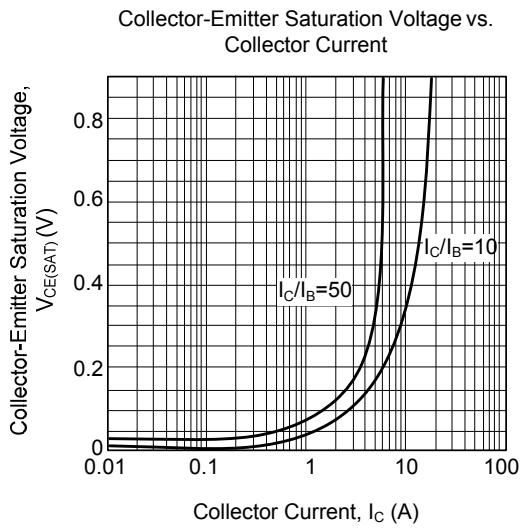
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

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	$I_{CER}$	$V_{CE} = 150\text{V}$ , $R_s \leq 1\text{K}\Omega$			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			
Transition Frequency	$f_T$	$I_C = 100\text{mA}$ , $V_{CE} = 10\text{V}$ $f = 50\text{MHz}$		100		MHz
Output Capacitance	$C_{OB}$	$V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$		38		pF
Switching Times	$t_{ON}$	$I_C = 1\text{A}$ , $V_{CC} = 10\text{V}$		50		ns
	$t_{OFF}$	$I_{B1} = I_{B2} = 100\text{mA}$		1600		ns

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

### TYPICAL CHARACTERISTICS



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