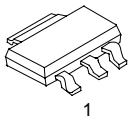
UP1753

NPN SILICON TRANSISTOR

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



SOT-223

*Pb-free plating product number: UP1753L

■ 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

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UP1753-AA3-R	UP1753L-AA3-R	SOT-223	B	C	E	Tape Reel

UP1753L-AA3-R
(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) R: Tape Reel
(2) AA3: SOT-223
(3) L: Lead Free Plating, Blank: Pb/Sn

■ 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 at Ta =25℃	P_D	3	W
Junction Temperature	T_J	+150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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.

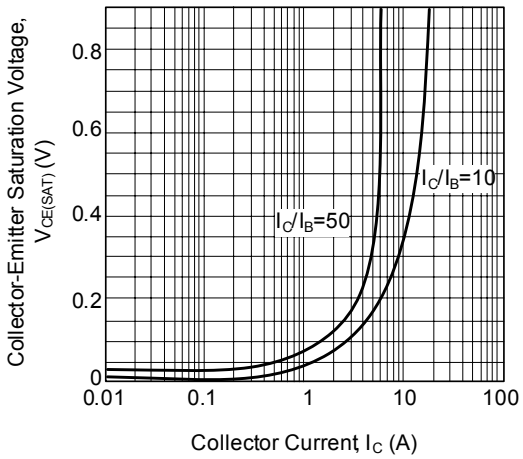
■ ELECTRICAL CHARACTERISTICS Ta= 25℃ (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=100μA	200	300		V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=10mA (Note1)	100	120		V
Emitter-Base Breakdown Voltage	BV_{EBO}	Ic=100μA	6	8		V
Collector Cut-Off Current	I_{CBO}	V_{CB}=150V, Ta=25℃ V_{CB}=150V Ta=100 ℃			10 1	nA μA
Collector Cut-Off Current	I_{CER}	R≤1KΩ, V_{CB}=150V, Ta=25℃			10	nA
		R≤1KΩ, V_{CB}=150V, Ta=100 ℃			1	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=6V			10	nA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=0.1A, I_B=5mA (Note1) I_C=2A, I_B=100mA (Note1) I_C=5A, I_B=500mA (Note1)			50 150 330	mV mV mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=5A, I_B=500mA (Note1)			1250	mV
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	I_C=5A, V_{CE} =2V (Note1)			1100	mV
Static Forward Current Transfer Ratio	h_{FE}	I_C=10mA, V_{CE} =2V	100	200		
		I_C=2A, V_{CE} =2V (Note1)	100	200	300	
		I_C=4A, V_{CE} =2V (Note1)	50	100		
		I_C=10A, V_{CE} =2V (Note1)	20			
Transition Frequency	f_T	I_C=100mA, V_{CE} =10V f=50MHz		100		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz		38		pF
Switching Times	t_{ON}	I_C=1A, V_{CC} =10V		50		ns
	t_{OFF}	I_{B1}=I_{B2}=100mA		1600		ns

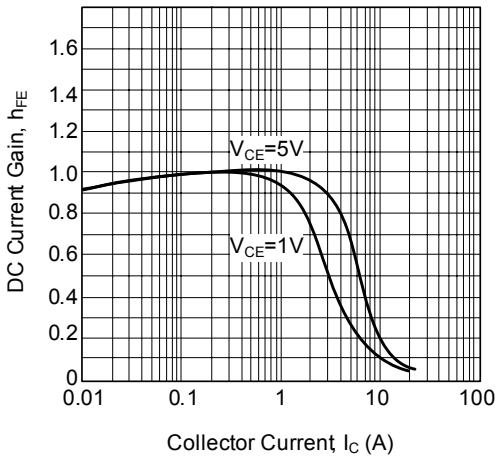
Note: 1.Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%,

■ TYPICAL CHARACTERISTICS

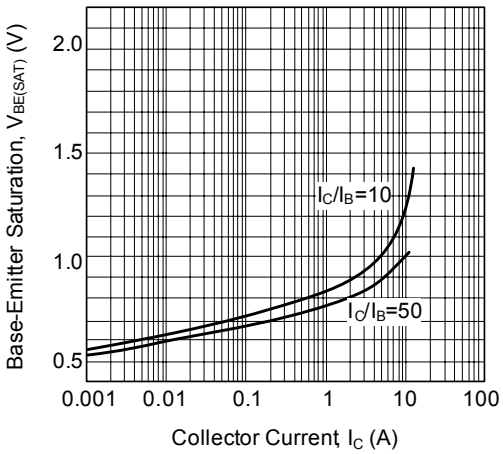
Collector-Emitter Saturation Voltagevs. Collector Current



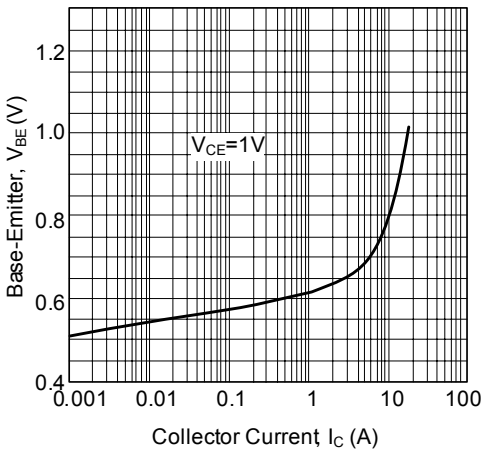
DC Current Gain vs. Collector Current



Base-Emitter Saturation vs. Collector Current



Base-Emitter Turn-On Voltage vs. Collector Current



Safe Operating Area