



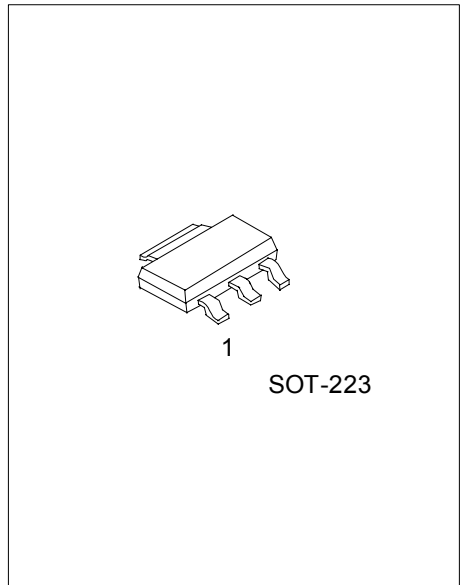
## UP1856

## PNP SILICON TRANSISTOR

### HIGH CURRENT TRANSISTOR

#### ■ FEATURES

- \* High current switching
- \* Low  $V_{CE(SAT)}$
- \* High  $h_{FE}$



\*Pb-free plating product number: UP1856L

#### ■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UP1856-AA3-R	UP1856L-AA3-R	SOT-223	B	C	E	Tape Reel

<p>UP1856L-AA3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) R: Tape Reel</p> <p>(2) AA3: SOT-223</p> <p>(3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CBO}$	-220	V
Collector-Emitter Voltage	$V_{CEO}$	-200	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Peak Pulse Current	$I_{C(PEAK)}$	-5	A
Continuous Collector Current	$I_C$	-2	A
Power Dissipation at $T_a=25^\circ\text{C}$	$P_D$	1	W
Junction Temperature	$T_J$	+150	
Storage Temperature	$T_{STG}$	-40 ~ +150	

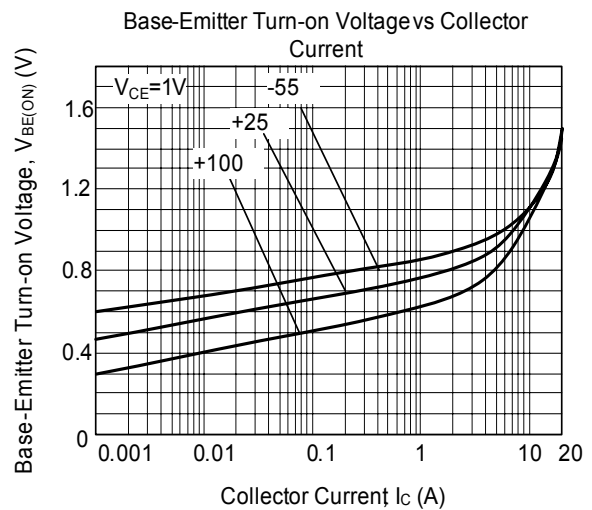
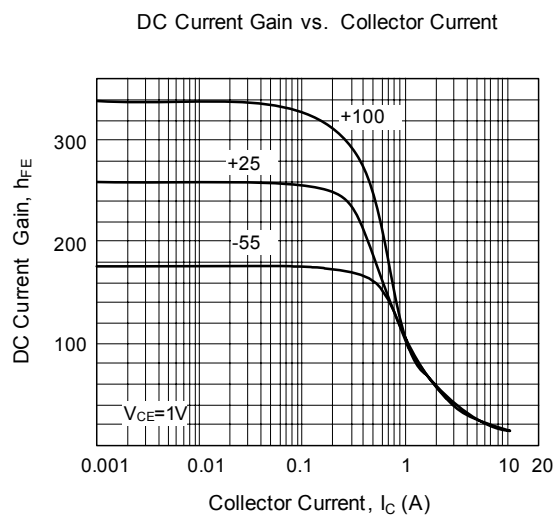
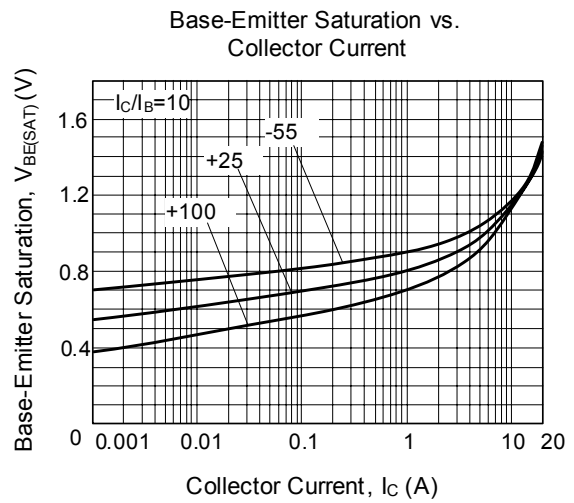
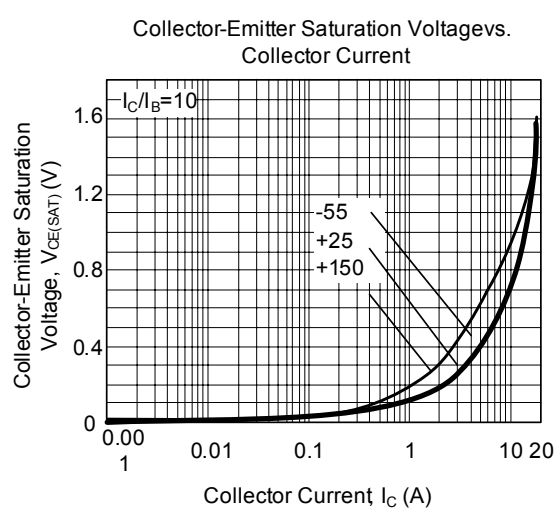
Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ( $T_a = 25$  unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = -10\text{mA}$ , $I_B = 0$ (Note)	-200	-240		V
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = -0.1\text{mA}$ , $I_E = 0$	-220	-300		V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E = -0.1\text{mA}$ , $I_C = 0$	-6	-8		V
Collector-Emitter Saturation Voltage(Note)	$V_{CE(SAT)}$	$I_C = -100\text{mA}$ , $I_B = -10\text{mA}$		-30	-50	mV
		$I_C = -1\text{A}$ , $I_B = -100\text{mA}$		-120	-165	mV
		$I_C = -2\text{A}$ , $I_B = -400\text{mA}$		-168	-275	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = -2\text{A}$ , $I_B = -400\text{mA}$		-970	-1110	mV
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$I_C = -2\text{A}$ , $V_{CE} = -5\text{V}$ (Note)		-810	-950	mV
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = -200\text{V}$ , $I_E = 0$			-50	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = -6\text{V}$ , $I_C = 0$			-10	nA
DC Current Gain (Note)	$h_{FE1}$	$I_C = -10\text{mA}$ , $V_{CE} = -5\text{V}$	100	200	300	
	$h_{FE2}$	$I_C = -1\text{A}$ , $V_{CE} = -5\text{V}$	100	200		
	$h_{FE3}$	$I_C = -2\text{A}$ , $V_{CE} = -5\text{V}$	50	150		
	$h_{FE4}$	$I_C = -5\text{A}$ , $V_{CE} = -5\text{V}$		10		
Transition Frequency	$f_T$	$I_C = -100\text{mA}$ , $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$		110		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -20\text{V}$ , $f = 1\text{MHz}$		32		pF
Turn-on Time	$t_{ON}$	$I_C = -1\text{A}$ , $I_{B1} = -100\text{mA}$		67		ns
Turn-off Time	$t_{OFF}$	$I_{B2} = 100\text{mA}$ , $V_{CC} = -50\text{V}$		1140		ns

Note: Pulsed test: duty cycle  $\leq 2\%$ ,  $t_P = 300\mu\text{sec}$ .

## TYPICAL CHARACTERISTICS



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