



UP3855

PNP SILICON TRANSISTOR

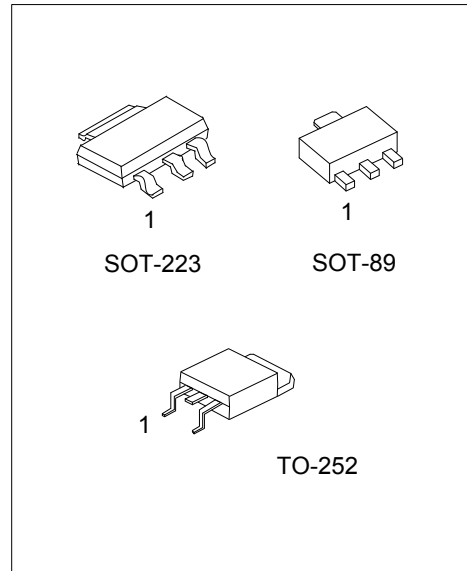
PNP MEDIUM POWER LOW SATURATION TRANSISTOR

■ DESCRIPTION

The UTC **UP3855** is a transistor with low saturation voltage. It provides customers with very low on-state losses that makes it ideal for applications, such as driving and power management functions and DC-DC circuits.

■ FEATURES

- * Extremely low saturation voltages
- * Peak current up to 10A
- * 4A continuous current



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UP3855L-AA3-R	UP3855G-AA3-R	SOT-223	B	C	E	Tape Reel
UP3855L-AB3-R	UP3855G-AB3-R	SOT-89	B	C	E	Tape Reel
UP3855L-TN3-R	UP3855G-TN3-R	TO-252	B	C	E	Tape Reel

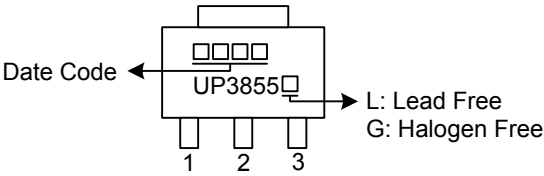
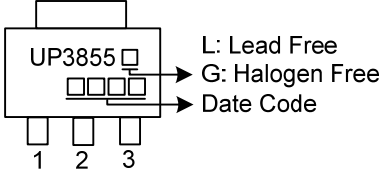
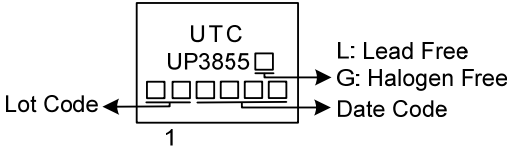
Note: Pin Assignment: B: Base C: Collector E: Emitter

<p>UP3855G-AA3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AA3: SOT-223, AB3: SOT-89, TN3: TO-252</p> <p>(3) G: Halogen Free and Lead Free, , L: Lead Free</p>
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MARKING

PACKAGE	MARKING
SOT-89	 <p>The diagram shows a SOT-89 package with three pins labeled 1, 2, and 3. The marking on the package includes the part number 'UP3855' and a date code consisting of three squares. Arrows point from the date code to the label 'Date Code' and from the 'UP3855' to the labels 'L: Lead Free' and 'G: Halogen Free'.</p>
SOT-223	 <p>The diagram shows a SOT-223 package with three pins labeled 1, 2, and 3. The marking on the package includes the part number 'UP3855' and a date code consisting of three squares. Arrows point from the date code to the label 'Date Code' and from the 'UP3855' to the labels 'L: Lead Free' and 'G: Halogen Free'.</p>
TO-252	 <p>The diagram shows a TO-252 package with one pin labeled 1. The marking on the package includes the manufacturer logo 'UTC', the part number 'UP3855', a lot code consisting of five squares, and a date code consisting of two squares. Arrows point from the lot code to the label 'Lot Code', from the 'UP3855' to the labels 'L: Lead Free' and 'G: Halogen Free', and from the date code to the label 'Date Code'.</p>

■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	-180	V
Collector-Emitter Voltage		V_{CEO}	-140	V
Emitter-Base Voltage		V_{EBO}	-7	V
Continuous Collector Current (Note 1)		I_C	-4	A
Peak Pulse Current		I_{CM}	-10	A
Power Dissipation	SOT-223	P_D	3.0 (Note 1)	W
	SOT-89		1.6 (Note 2)	W
	TO-252		0.6	W
			2	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.

■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	θ_{JA}	42 (Note 1)	$^{\circ}\text{C}/\text{W}$
	SOT-89		78 (Note 2)	$^{\circ}\text{C}/\text{W}$
	TO-252		208	$^{\circ}\text{C}/\text{W}$
			62.5	$^{\circ}\text{C}/\text{W}$

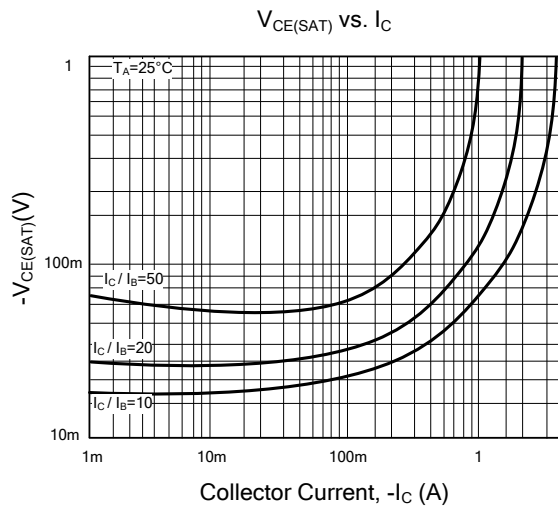
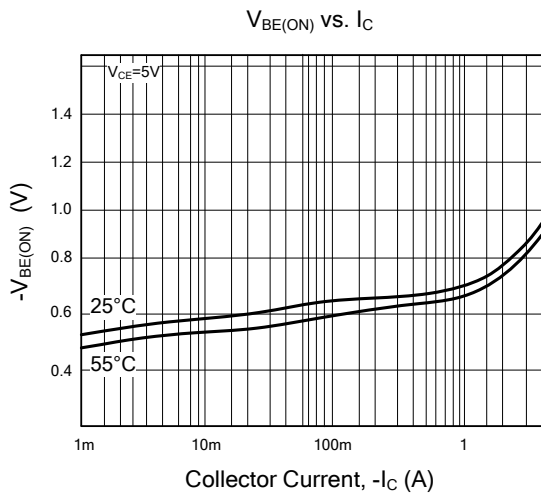
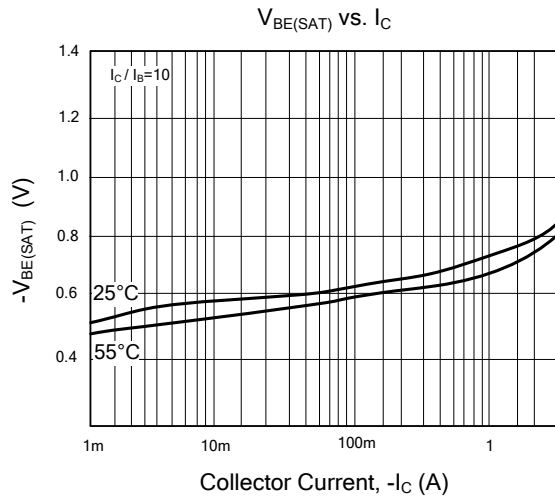
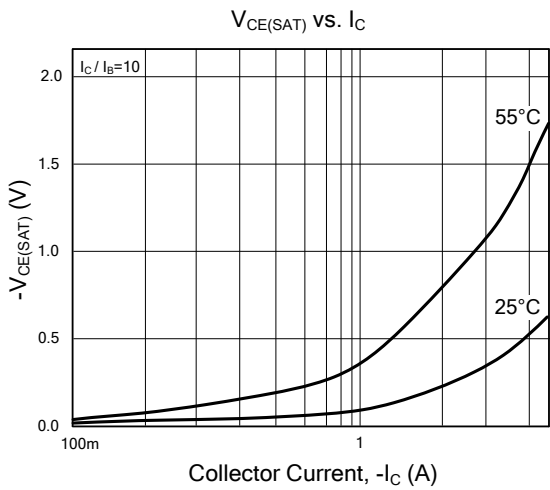
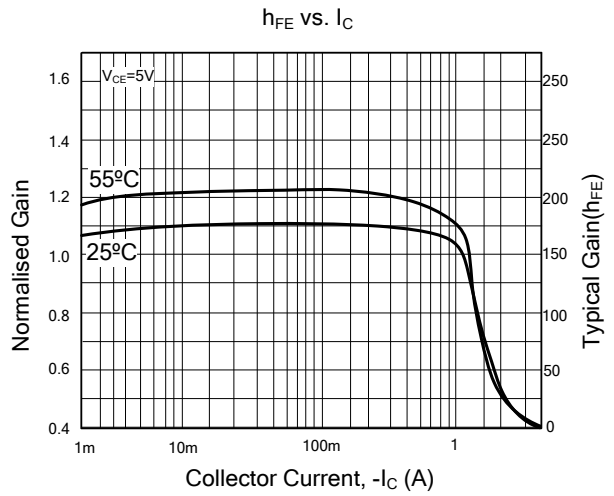
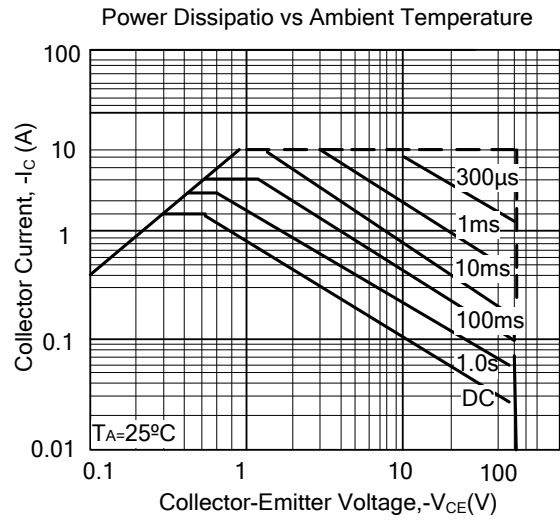
Notes: 1. For a device surface mounted on 52mm x 52mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions.
2. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

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

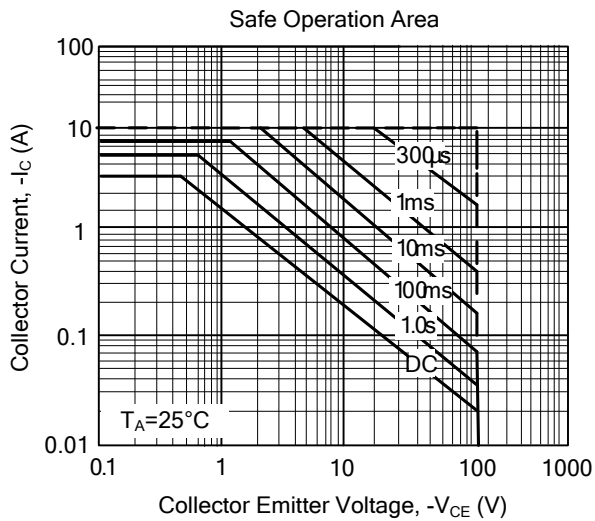
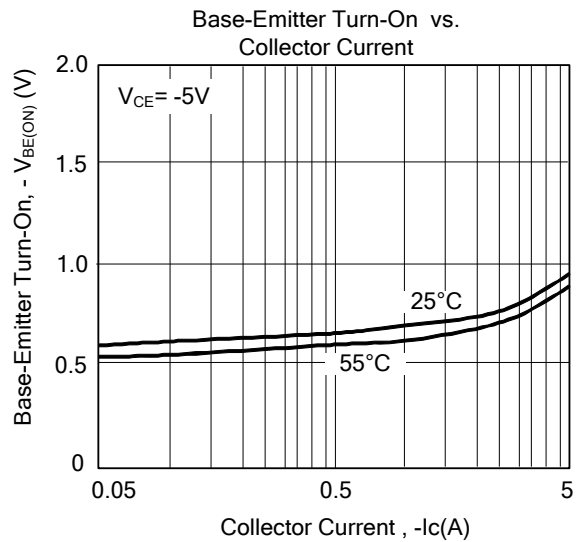
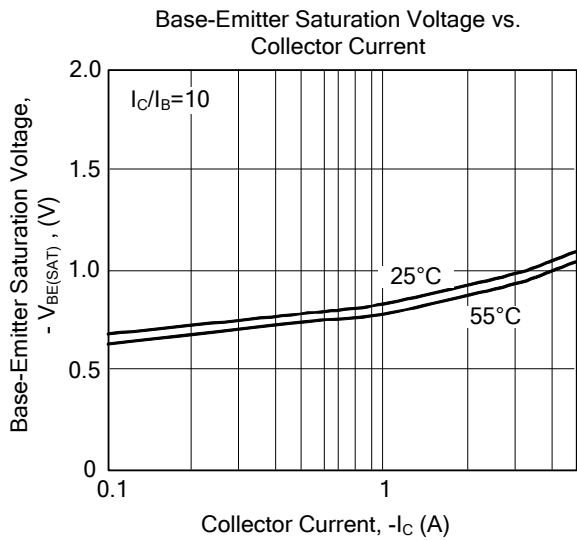
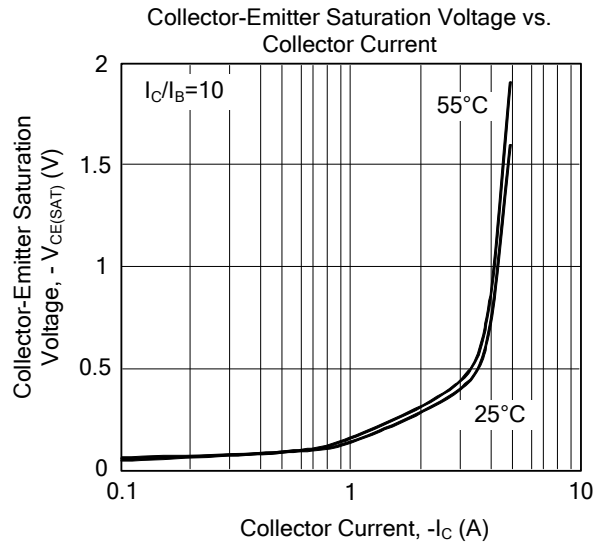
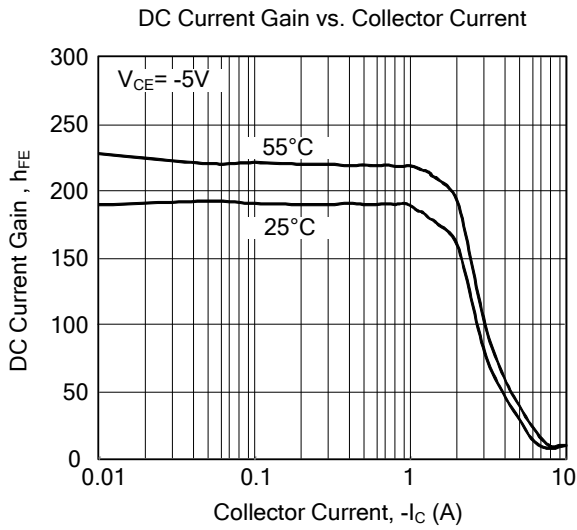
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V_{CBO}	$I_C = -100\mu\text{A}$	-180	-200		V
Collector-Emitter Breakdown Voltage	V_{CER}	$I_C = -1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$	-180	-200		V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C = -10\text{mA}$ (Note 1)	-140	-160		V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E = -100\mu\text{A}$	-7.0	-8.0		V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = -150\text{V}$		<1	-20	nA
		$V_{CB} = -150\text{V}$, $T_A = 100^\circ\text{C}$			-0.5	μA
Collector Cut-Off Current	I_{CER}	$V_{CB} = -150\text{V}$, $R \leq 1\text{k}\Omega$		<1	-20	nA
		$T_A = 100^\circ\text{C}$			-0.5	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = -6\text{V}$		<1	-10	nA
Collector-Emitter Saturation Voltage (Note 1)	$V_{CE(SAT)}$	$I_C = -0.1\text{A}$, $I_B = -5\text{mA}$		-40	-60	mV
		$I_C = -0.5\text{A}$, $I_B = -50\text{mA}$		-55	-80	mV
		$I_C = -1\text{A}$, $I_B = -100\text{mA}$		-85	-120	mV
		$I_C = -3\text{A}$, $I_B = -300\text{mA}$		-275	-360	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = -3\text{A}$, $I_B = -300\text{mA}$ (Note 1)		-940	-1040	mV
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$I_C = -3\text{A}$, $V_{CE} = -5\text{V}$ (Note 1)		-830	-930	mV
Static Forward Current Transfer Ratio (Note 1)	h_{FE}	$I_C = -10\text{mA}$, $V_{CE} = -5\text{V}$	100	225		
		$I_C = -1\text{A}$, $V_{CE} = -5\text{V}$	100	200	300	
		$I_C = -3\text{A}$, $V_{CE} = -5\text{V}$	45	100		
		$I_C = -10\text{A}$, $V_{CE} = -5\text{V}$		5		
Transition Frequency	f_T	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$		120		MHz
Output Capacitance (Note)	C_{OBO}	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$		33		pF
Switching Times	t_{ON}	$I_C = -1\text{A}$, $V_{CC} = -50\text{V}$,		150		ns
	t_{OFF}	$I_{B1} = -I_{B2} = -100\text{mA}$		750		ns

Note: Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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