



UP3855

PNP SILICON TRANSISTOR

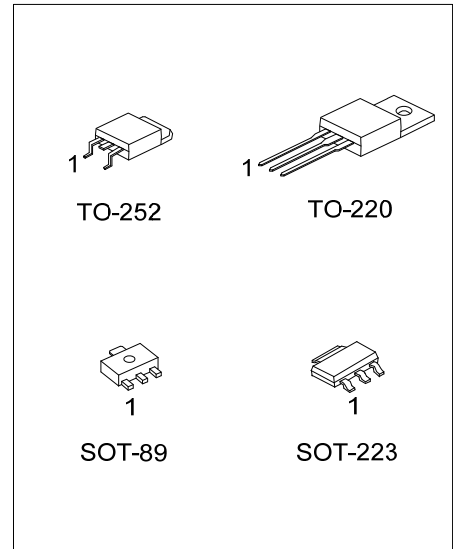
PNP MEDIUM POWER LOW SATURATION TRANSISTOR

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-TA3-T	UP3855G-TA3-T	TO-220	B	C	E	Tube
UP3855L-TN3-R	UP3855G-TN3-R	TO-252	B	C	E	Tape Reel

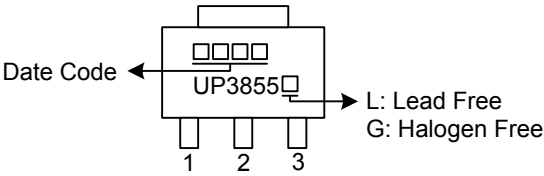
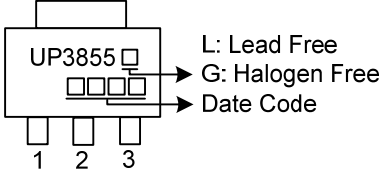
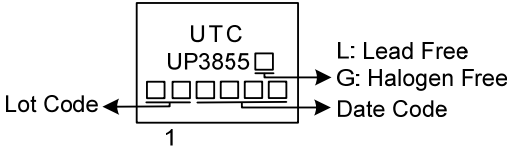
Note: Pin Assignment: B: Base C: Collector E: Emitter

<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, TA3: TO-220 TN3: TO-252</p> <p>(3) G: Halogen Free and Lead Free, , L: Lead Free</p>
--	--

UP3855

PNP SILICON TRANSISTOR

MARKING

PACKAGE	MARKING
SOT-89	 <p>The diagram shows a SOT-89 package with three pins labeled 1, 2, and 3. The marking 'UP3855' is located on the top surface. To the left of the package, an arrow points to three small squares representing the Date Code. To the right, an arrow points to '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 'UP3855' is on the top surface. To the right, an arrow points to 'L: Lead Free' and 'G: Halogen Free'. Below that, an arrow points to three small squares representing the Date Code.</p>
TO-220 TO-252	 <p>The diagram shows a TO-220/TO-252 package with one pin labeled 1. The marking 'UTC' is at the top, followed by 'UP3855'. Below that, an arrow points to five small squares representing the Lot Code. To the right, an arrow points to 'L: Lead Free' and 'G: Halogen Free'. Below that, an arrow points to three small squares representing the 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
			1.6 (Note 2)	W
	SOT-89		0.6	W
	TO-220 TO-252		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)	$^{\circ}\text{C}/\text{W}$
			78 (Note 2)	$^{\circ}\text{C}/\text{W}$
	SOT-89		208	$^{\circ}\text{C}/\text{W}$
	TO-220 TO-252		62.5	$^{\circ}\text{C}/\text{W}$

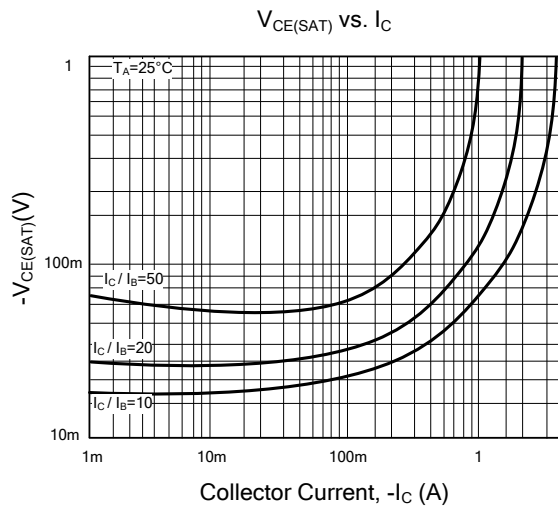
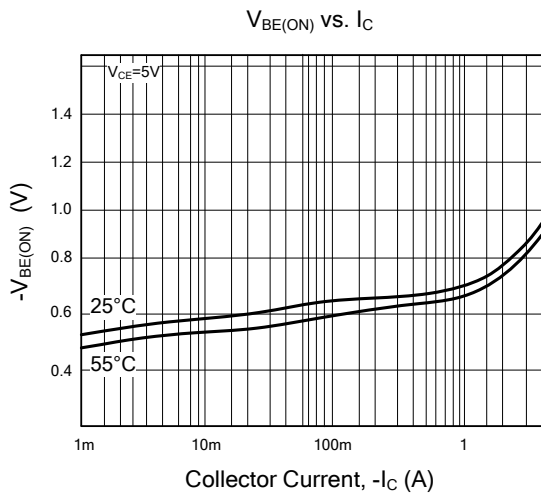
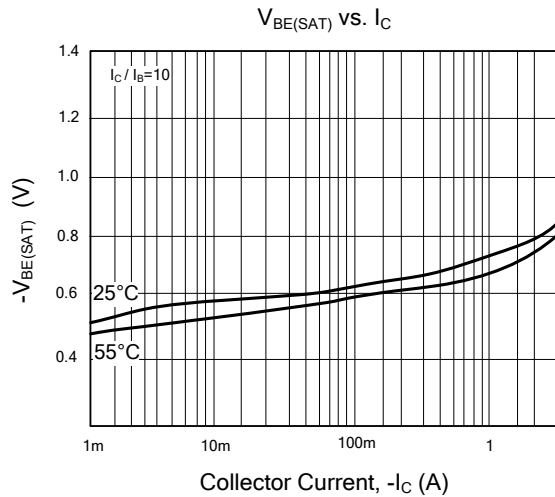
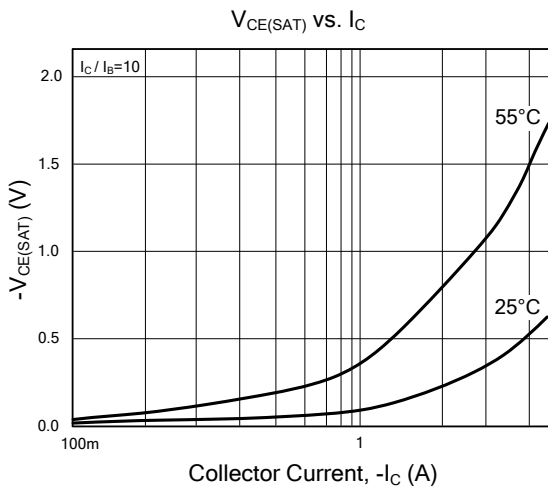
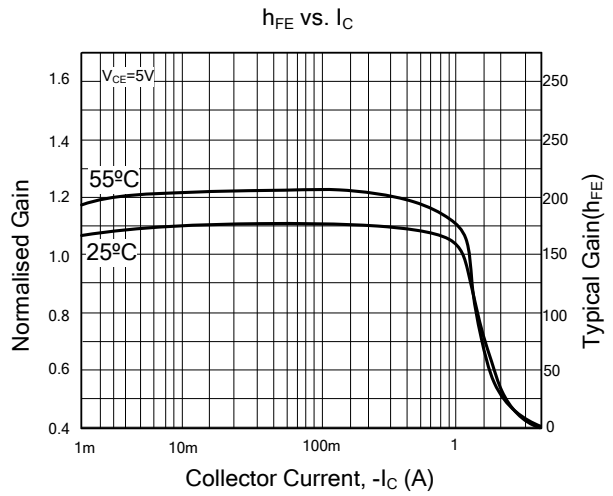
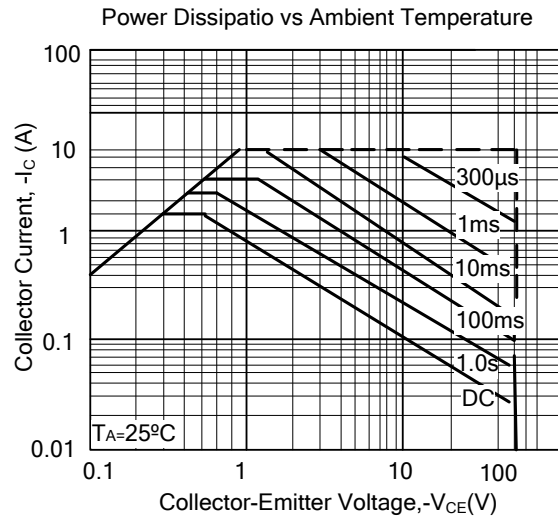
Notes: 1. For a device surface mounted on 52mm x 52mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions.
2. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

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

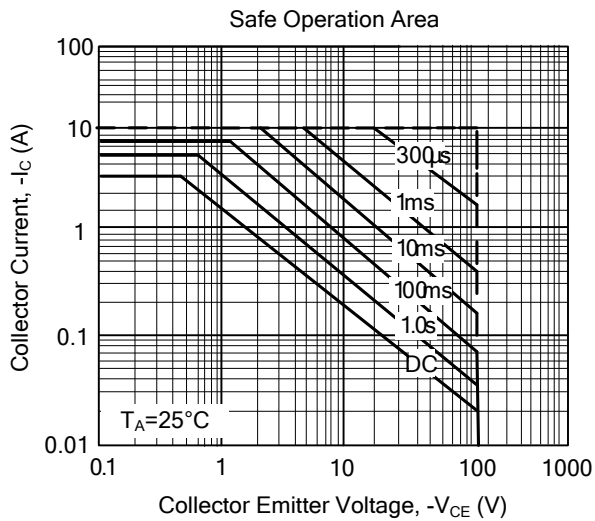
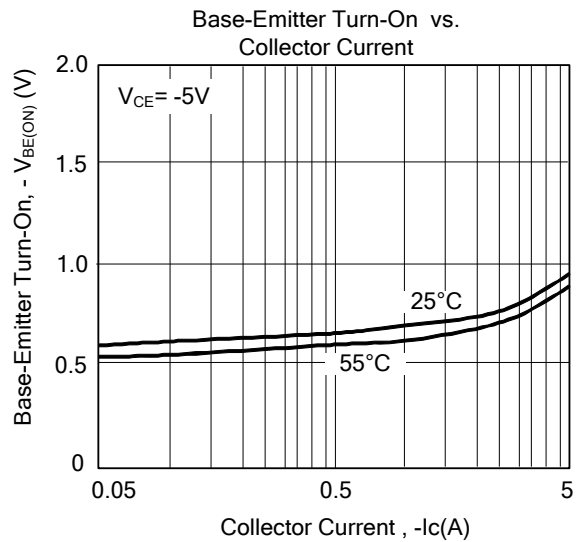
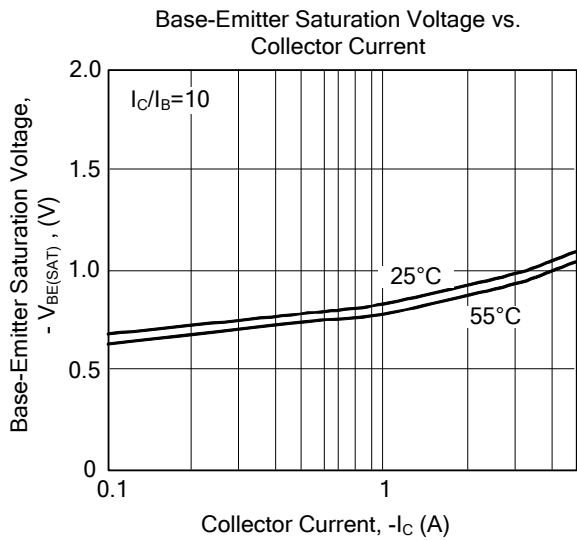
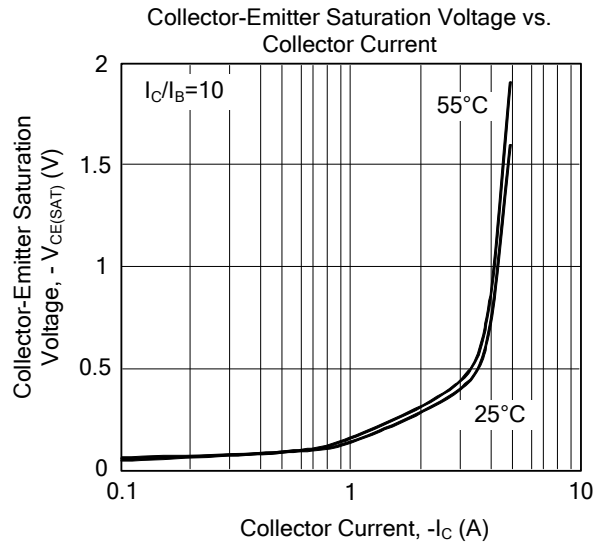
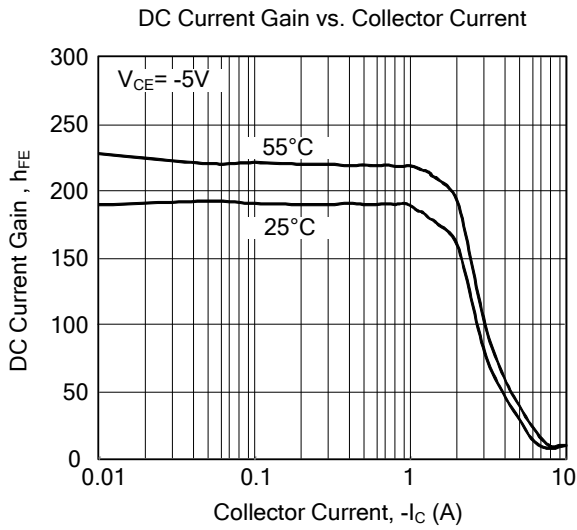
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Collector-Base Breakdown Voltage	V_{CBO}	$I_C = -100\mu\text{A}$	-180	-200		V	
Collector-Emitter Breakdown Voltage	V_{CER}	$I_C = -1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$	-180	-200		V	
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C = -10\text{mA}$ (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)	TO-220		-1050	-1200	mV
			SOT-223				
			SOT-89		-940	-1040	mV
			TO-252				
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$I_C = -3\text{A}$, $V_{CE} = -5\text{V}$ (Note 1)	TO-220		-920	-1020	mV
			SOT-223				
			SOT-89		-830	-930	mV
			TO-252				
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.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.