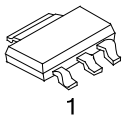
UP3855

PNP SILICON TRANSISTOR

PNP MEDIUM POWER LOW SATURATION TRANSISTOR



SOT-223

■ 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

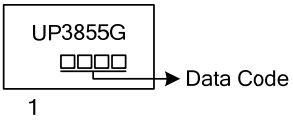
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UP3855G-AA3-R	SOT-223	B	C	E	Tape Reel

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

UP3855G-AA3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AA3: SOT-223 (3) G: Halogen Free and Lead Free

■ MARKING



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■ ABSOLUTE MAXIMUM RATING (T_A=25°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	P_D	3.0 (Note 1)	W
		1.6 (Note 2)	
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°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 RESISTANCE

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	42 (Note 1)	°C/W
		78 (Note 2)	

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.

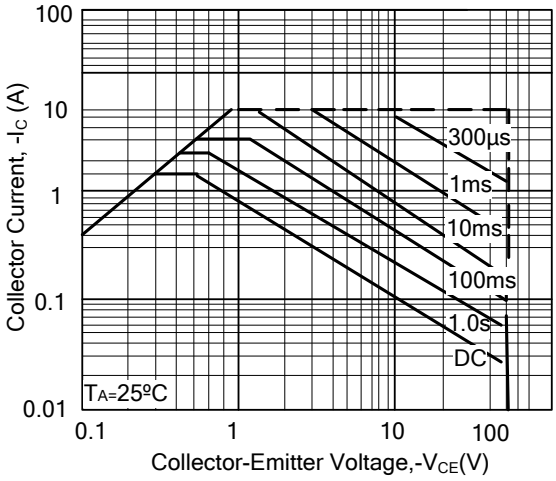
■ ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

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

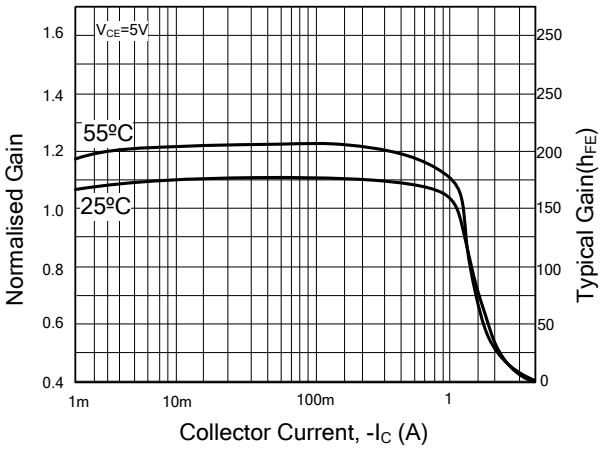
Note: 1. Measured under pulsed conditions. Pulse width≤300μs; duty cycle≤2%.

■ TYPICAL CHARACTERISTICS

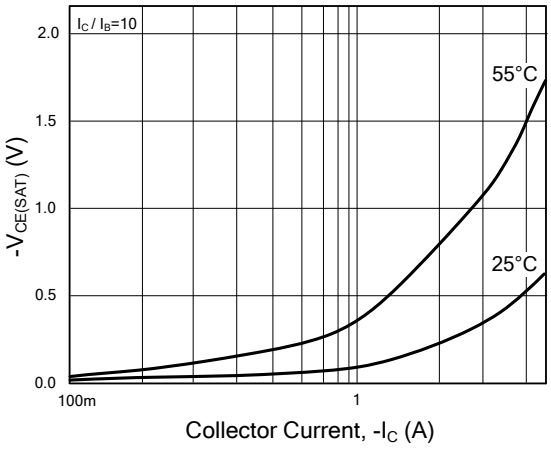
Power Dissipatio vs Ambient Temperature



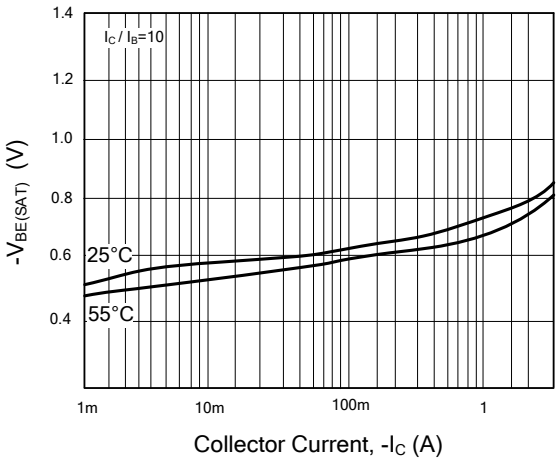
h_{FE} vs. I_C



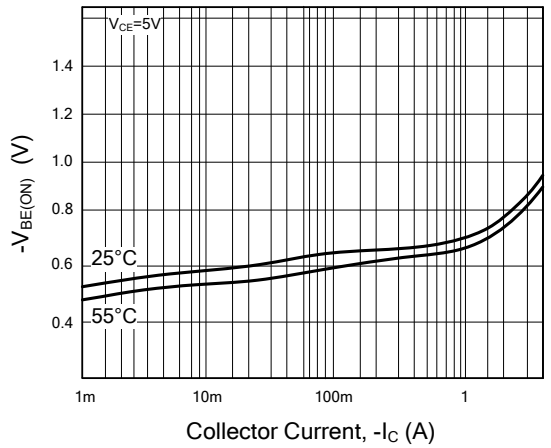
$V_{CE(SAT)}$ vs. I_C



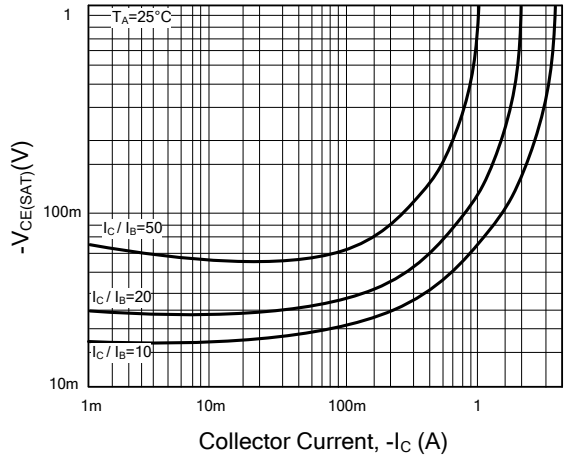
$V_{BE(SAT)}$ vs. I_C



$V_{BE(ON)}$ vs. I_C



$V_{CE(SAT)}$ vs. I_C



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