



USS4450

NPN SILICON TRANSISTOR

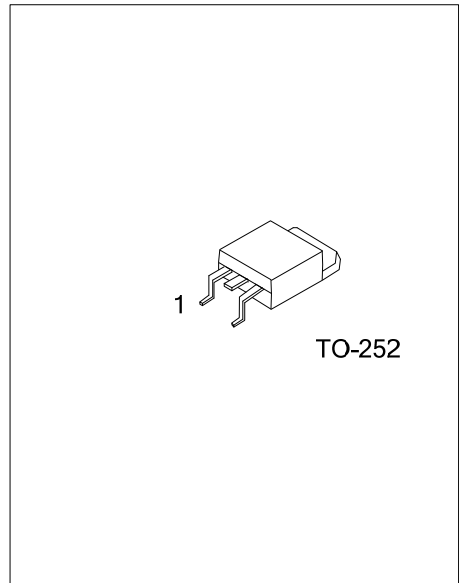
50V, 5A NPN LOW $V_{CE(SAT)}$ TRANSISTOR

DESCRIPTION

The UTC **USS4450** is a NPN transistor with low V_{CEsat} . It has high collector current I_C , I_{CM} performance. This device can be used in power management applications, such as DC/DC converters, supply line switching, battery charger and linear voltage regulation (LDO) and peripheral drivers, such as driver in low supply voltage applications and inductive load driver.

FEATURES

- * Less heat dissipation due to high efficiency
- * Low collector-emitter saturation voltage
- * High collector current capability
- * High collector current gain under high collector current condition



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS4450L-TN3-R	USS4450G-TN3-R	TO-252	B	C	E	Tape Reel

USS4450L-TN3-R (1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel (2) TN3: TO-252 (3) L: Lead Free G: Halogen Free
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■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V _{CBO}	60	V
Collector-Emitter Voltage		V _{CEO}	50	V
Emitter-Base Voltage		V _{EBO}	6	V
Collector Current	DC	I _C	3	A
	Peak	I _{CM}	5	A
Peak Base Current		I _{BM}	1	A
Power Dissipation (T _C =25°C) (Note 2)		P _D	1.4	W
Junction Temperature		T _J	150	°C
Operating Temperature		T _{OPR}	+150	°C
Storage Temperature		T _{STG}	-65 ~ +150	°C

Notes: 1. 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.

2. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 6 cm²

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	θ_{JA}	62.5	°C/W

Notes Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 6 cm².

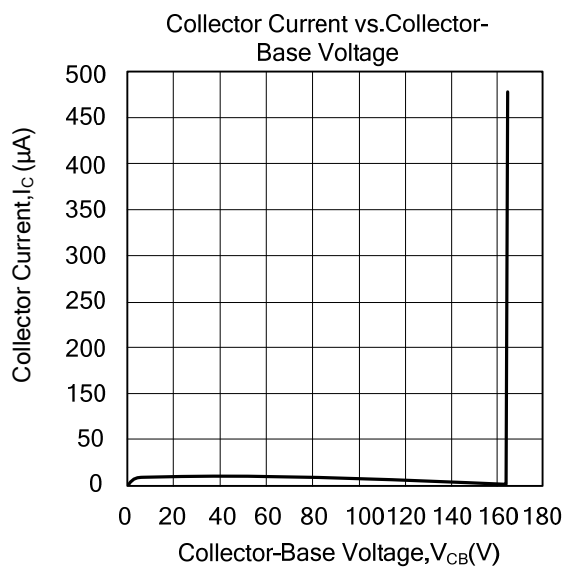
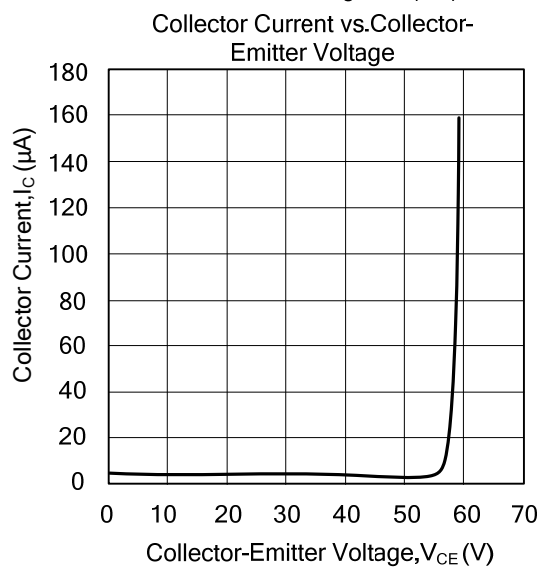
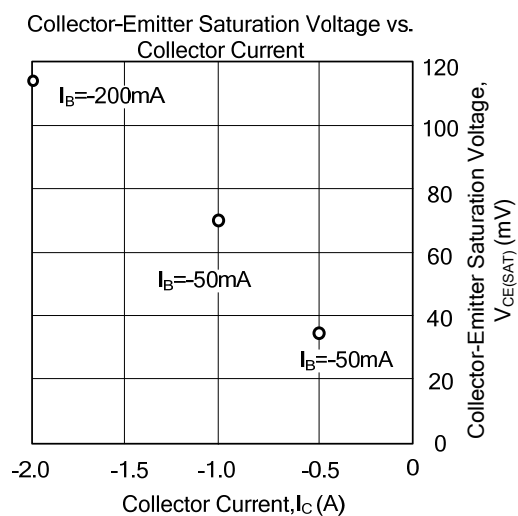
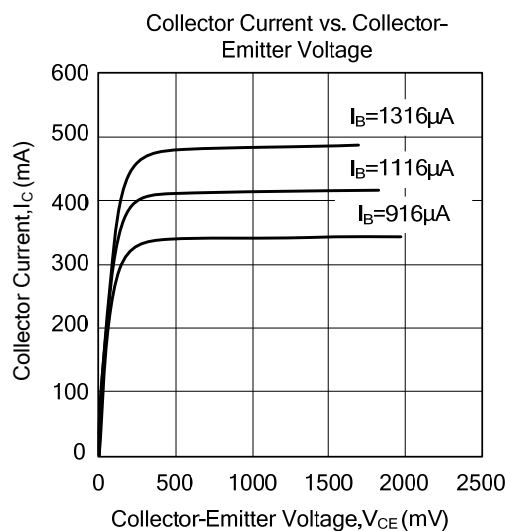
For other mounting conditions see "Thermal considerations for TO-252 in the General Part of associated Handbook".

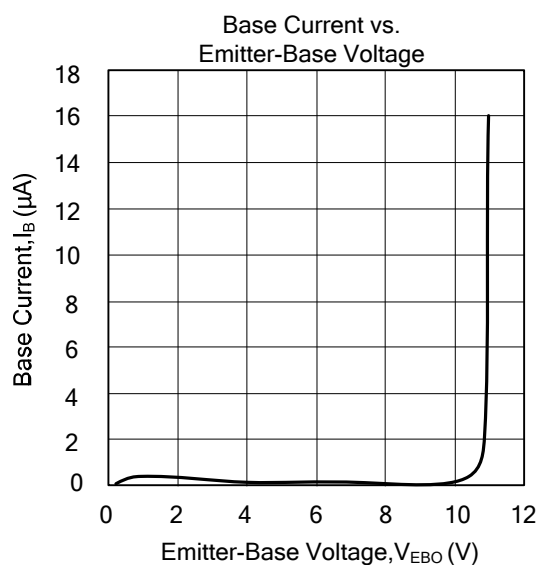
■ ELECTRICAL CHARACTERISTICS T_A = 25 °C unless otherwise specified.

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Cut-Off Current	I_{CBO}	$V_{CB} = 50 \text{ V}, I_E = 0$			100	nA
		$V_{CB} = 50 \text{ V}, I_E = 0, T_J = 150 \text{ °C}$			50	μA
Emitter-Base Cut-Off Current	I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$			100	nA
DC Current Gain	h_{FE}	$V_{CE} = 2 \text{ V}, I_C = 500 \text{ mA}$	200			
		$V_{CE} = 2 \text{ V}, I_C = 1 \text{ A}, (\text{Note } 1)$	200			
		$V_{CE} = 2 \text{ V}, I_C = 2 \text{ A}, (\text{Note } 1)$	100			
Collector-Emitter Saturation voltage	V_{CEsat}	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			90	mV
		$I_C = 1 \text{ A}, I_B = 50 \text{ mA}$			170	mV
		$I_C = 2 \text{ A}, I_B = 200 \text{ mA}, (\text{Note } 1)$			290	mV
Equivalent On-Resistance	R_{CEsat}	$I_C = 2 \text{ A}, I_B = 200 \text{ mA}, (\text{Note } 1)$		110	145	mΩ
Base-Emitter Saturation voltage	V_{BEsat}	$I_C = 2 \text{ A}, I_B = 200 \text{ mA}, (\text{Note } 1)$			1.2	V
Base-Emitter Turn-On Voltage	V_{BEon}	$V_{CE} = 2 \text{ V}, I_C = 1 \text{ A}, (\text{Note } 1)$			1.1	V
Transition Frequency	f_T	$I_C = 100 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	100			MHz
Collector Capacitance	C_c	$V_{CB} = 10 \text{ V}, I_E = I_C = 0, f = 1 \text{ MHz}$			30	pF

Note 1. Pulse test: $t_p \leq 300 \text{ μs}, \delta \leq 0.02$.

■ TYPICAL CHARACTERISTICS





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