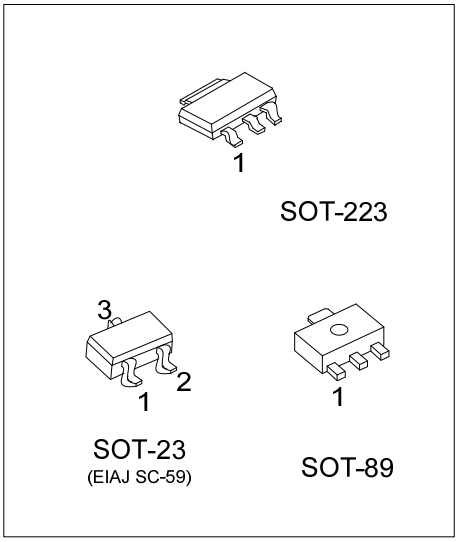
USS4350

NPN SILICON TRANSISTOR

3.0A, 50V NPN LOW $V_{CE(SAT)}$ TRANSISTOR



■ DESCRIPTION

The **UTC USS4350** is a low $V_{CE\ (SAT)}$ NPN transistor designed for applications, such as: DC/DC converter, supply line switching, battery charger, linear voltage regulation, driver in low supply voltage applications and inductive load driver.

■ FEATURES

* Collector-emitter saturation voltage:50V
* High collector current gain (h_{FE}) under high I_C conditions
* High collector current capability
* Higher efficiency resulting in less heat generation
* Complementary to UTC USS5350

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS4350L-AA3-R	USS4350G-AA3-R	SOT-223	B	C	E	Tape Reel
USS4350L-AB3-R	USS4350G-AB3-R	SOT-89	B	C	E	Tape Reel
USS4350L-AE3-R	USS4350G-AE3-R	SOT-23	B	E	C	Tape Reel

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

USS4350G-AA3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AA3: SOT-223, AB3: SOT-89, AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

PACKAGE	MARKING
SOT-223	USS4350□ L: Lead Free □□□□ G: Halogen Free Date Code 1
SOT-89	□□□□ Data Code USS4350□ L: Lead Free G: Halogen Free 1
SOT-23	DS□ L: Lead Free G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS (T_A=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)	SOT-89	P_D	1.4	W
	SOT-223		2	W
	SOT-23		0.35	W
Junction Temperature		T_J	150	°C
Operating Temperature		T_{OPR}	-65 ~ +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 cm^2

■ THERMAL DATA (Note)

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	θ_{JA}	90	°C/W
	SOT-223		62.5	°C/W
	SOT-23		357.1	°C/W

Note: Device mounted on FR-4 substrate P_C board, 2oz copper, with 1inch square copper plate.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB}=50V, I_E=0			100	nA
Emitter Cut-off Current	I_{EBO}	V_{EB}=5V, I_C=0			100	nA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=500mA, I_B=50mA			90	mV
		I_C=1.0A, I_B=50mA			170	mV
		I_C=2.0A, I_B=200mA (Note)			290	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=2.0A, I_B=200mA (Note)			1.2	V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	V_{CE}=2.0V, I_C=1.0A (Note)			1.1	V
DC Current Gain	h_{FE1}	V_{CE}=2.0V, I_C=500mA	200			
	h_{FE2}	V_{CE}=2.0V, I_C=1.0A (Note)	200			
	h_{FE3}	V_{CE}=2.0V, I_C=2.0A (Note)	100			
Equivalent On-Resistance	$R_{CE(SAT)}$	I_C=2.0A, I_B=200mA (Note)		110	<145	mΩ
Transition Frequency	f_T	I_C=100mA, V_{CE}=5.0V, f=100MHz	100			MHz
Collector Capacitance	C_C	V_{CB}=10V, I_E=I_e=0, f=1MHz			30	pF

Note: Pulse test: t_P ≤300μs; Duty cycle ≤2%.

■ TYPICAL CHARACTERISTICS