



USS8110T

Preliminary

NPN SILICON TRANSISTOR

1A, 100V NPN LOW $V_{CE(SAT)}$ TRANSISTOR

DESCRIPTION

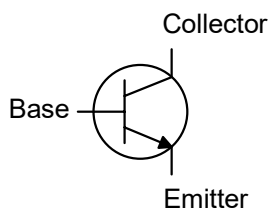
The UTC **USS8110T** is NPN low $V_{CE(SAT)}$ transistor in a medium power and flat lead SOT-23 Surface-Mounted Device (SMD) plastic package.

PNP complement: USS9110T.

FEATURES

- * Very low collector-emitter saturation voltage $V_{CE(SAT)}$
- * High collector current capability I_C and I_{CM}
- * High collector current gain (h_{FE}) at high I_C
- * High energy efficiency due to less heat generation

EQUIVALENT CIRCUIT



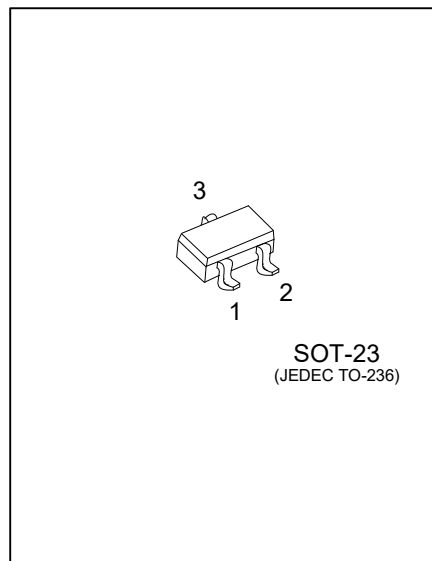
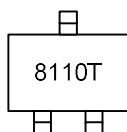
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS8110TL-AE3-R	USS8110TG-AE3-R	SOT-23	B	E	C	Tape Reel

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

USS8110TG-AE3-R	(1) Packing Type	(1) R: Tape Reel
	(2) Package Type	(2) AE3: SOT-23
	(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Collector Current	I_{CM}	3	A
Base Current	I_B	300	mA
Power Dissipation	P_C	300	mW
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 DATA**

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	417	$^{\circ}\text{C/W}$

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

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=100\mu\text{A}$, $I_E=0$	120			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=10\text{mA}$, $I_B=0$	100			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E=100\mu\text{A}$, $I_C=0$	5			V
Collector-Base Cut-off Current	I_{CBO}	$V_{CB}=80\text{V}$, $I_E=0$			100	nA
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=80\text{V}$, $V_{BE}=0$			100	nA
Emitter-Base Cut-off Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0$			100	nA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=1\text{A}$, $I_B=100\text{mA}$			1.05	V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$V_{CE}=10\text{V}$, $I_C=1\text{A}$			0.9	V
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}$, $I_C=1\text{mA}$	150			
		$V_{CE}=10\text{V}$, $I_C=250\text{mA}$	150		500	
		$V_{CE}=10\text{V}$, $I_C=500\text{mA}$	100			
		$V_{CE}=10\text{V}$, $I_C=1\text{A}$	80			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=100\text{mA}$, $I_B=10\text{mA}$			40	mV
		$I_C=500\text{mA}$, $I_B=50\text{mA}$			120	mV
		$I_C=1\text{A}$, $I_B=100\text{mA}$			200	mV

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