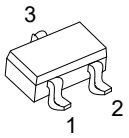
USS4160U **Preliminary** ***NPN SILICON TRANSISTOR***

1A, 60V NPN LOW $V_{CE(SAT)}$ TRANSISTOR



SOT-323

■ DESCRIPTION

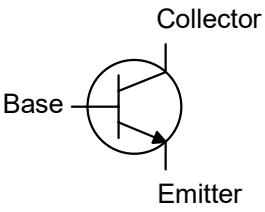
The **USS4160U** is NPN low $V_{CE(SAT)}$ transistor in a medium power and flat lead SOT-323 Surface-Mounted Device (SMD) plastic package.

PNP complement: USS5160U.

■ 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 IC
* High energy efficiency due to less heat generation

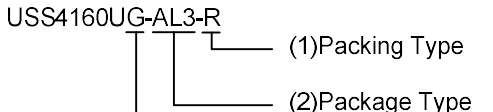
■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS4160UL-AL3-R	USS4160UG-AL3-R	SOT-323	B	E	C	Tube

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

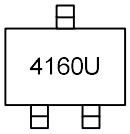


(1) R: Tape Reel

(2) AL3: SOT-323

(3) G: Halogen Free and Lead Free, L: 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}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current	I_{CM}	2	A
Power Dissipation	P_C	250	mW
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: 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 an FR4 PCB, single-sided copper, tin-plated and standard foot print

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	500	°C/W

Note: Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard foot print

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=100μA, I_E=0	80			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA, I_B=0	60			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=100μA, I_C=0	5			V
Collector-Base Cut-off Current	I_{CBO}	V_{CB}=60V			100	nA
Collector-Emitter Cut-off Current	I_{CES}	V_{CE}=60V			100	nA
Emitter-Base Cut-off Current	I_{EBO}	V_{EB}=5V			100	nA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=1A, I_B=50mA			1.1	V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	V_{CE}=5V, I_C=1A			0.9	V
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=1mA	250			
		V_{CE}=5V, I_C=500mA	200			
		V_{CE}=5V, I_C=1A	100			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=100mA, I_B=1mA			115	mV
		I_C=500mA, I_B=50mA			150	mV
		I_C=1A, I_B=100mA			280	mV
Transition Frequency	f_T	V_{CE}=10V, I_C=50mA, f=100MHz	150			MHz

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