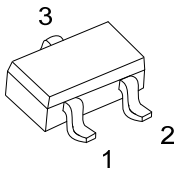
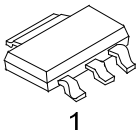
USSN5460 **Preliminary** ***NPN EPITAXIAL SILICON TRANSISTOR***

60V, 4.0A NPN LOW $V_{CE(SAT)}$ TRANSISTOR



SOT-23
(EIAJ SC-59)



SOT-223

■ FEATURES

* Low collector-emitter saturation voltage $V_{CE(SAT)}$
* High collector current capability: I_C and I_{CM}
* Higher efficiency leading to less heat generation
* Reduced printed-circuit board requirements
* Complement: USSP5460

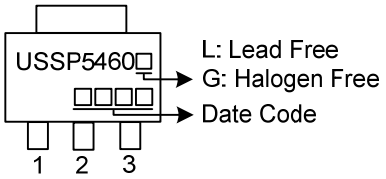
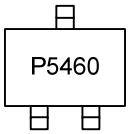
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USSN5460L-AA3-R	USSN5460G-AA3-R	SOT-223	B	C	E	Tape Reel
USSN5460L-AE3-R	USSN5460G-AE3-R	SOT-23	B	E	C	Tape Reel

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

USSN5460G-AA3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AA3: SOT-223, AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-223	SOT-23
	

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	150	V
Collector-Emitter Voltage		V_{CEO}	60	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	4	A
	Peak	I_{CM}	10	A
Base Current (DC)		I_B	1	A
Power Dissipation ($T_A \leq 25°C$)	SOT-223	P_D	1.35	W
	SOT-23		0.35	W
Junction Temperature		T_J	+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 FR4 printed-circuit board, single-sided copper; tin-plated, mounting pad for collector 1 cm^2.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	θ_{JA}	92	°C/W
	SOT-23		357	°C/W
Junction to Case	SOT-223	θ_{JC}	20	°C/W
	SOT-23		100	°C/W

Note: Device mounted on a FR4 printed-circuit board, single-sided copper; tin-plated, mounting pad for collector 1 cm^2.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Breakdown Voltage	BV_{CBO}	I_C=100μA, I_E=0	150			V
Collector to Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA, I_B=0	60			V
Emitter to Base Breakdown Voltage	BV_{EBO}	I_E=100μA, I_C=0	6			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=60V, I_E=0			100	nA
		V_{CB}=60V, I_E=0, T_J=150°C			50	μA
Collector Cut-Off Current	I_{CES}	V_{CE}=60V, V_{BE}=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=1A, I_B=10mA			260	mV
		I_C=2A, I_B=40mA			250	mV
		I_C=4A, I_B=400mA			230	mV
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C=4A, I_B=400mA			1.07	V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	V_{CE}=2V, I_C=2A			0.9	V
Dc Current Gain (Note)	h_{FE}	V_{CE}=2V, I_C=10mA	300		900	
		V_{CE}=2V, I_C=1.0A	240			
		V_{CE}=2V, I_C=4.0A	100			

Note: Pulse test: $t_P \leq$ 300μs, Duty cycle ≤ 2%.