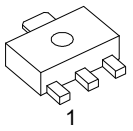
USS304PX

PNP EPITAXIAL SILICON TRANSISTOR

-60V, -4.2A PNP LOW $V_{CE(SAT)}$ TRANSISTOR



SOT-89

■ DESCRIPTION

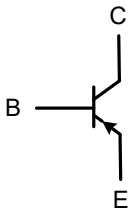
The **USS304PX** is an PNP low $V_{CE(SAT)}$ transistor in a SOT-89 small and flat lead Surface-Mounted Device(SMD) plastic package.

NPN complement: USS304NX

■ FEATURES

* 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 efficiency due to less heat generation
* Smaller required Printed-Circuit Board (PCB) area than for conventional transistors
* Green & Pb Free

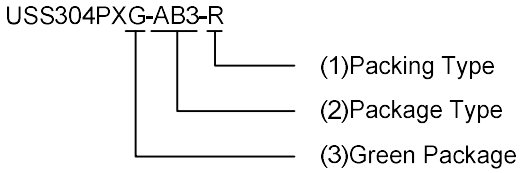
■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

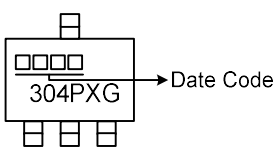
Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
USS304PXG-AB3-R	SOT-89	B	C	E	Tape Reel

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



(1) R: Tape Reel
(2) AB3: SOT-89
(3) G: Halogen Free and Lead Free

■ MARKING



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■ ABSOLUATE MAXIUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V_{CBO}	-60	V
Collector to Emitter Voltage	V_{CEO}	-60	V
Emitter to Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-4.2	A
Peak Collector Current	I_{CM}	-8.4	A
Collector Power Dissipation	P_C	0.6	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +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. Single pulse, P_W=10ms.
3. Device mounted on FR-4 PCB with minimum recommended pad layout.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	208	°C/W

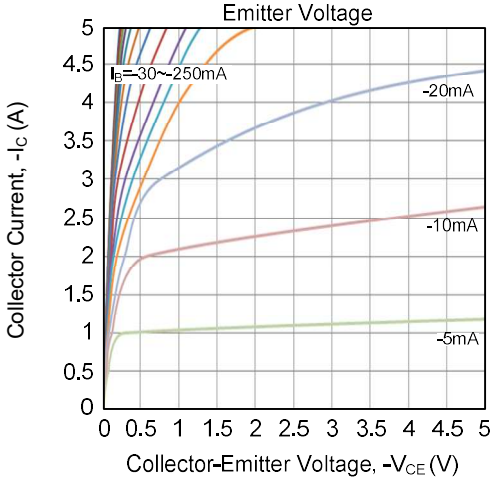
■ ELECTRICAL CHARACTERISTICS (T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=-100μA, I_E=0A	-60			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=-1μA, I_B=0A	-60			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=-100μA, I_C=0A	-5			V
Collector Cutoff Current	I_{CBO}	V_{CB}=-60V, I_E=0A			-100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=-5V, I_C=0A			-100	nA
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C=-1A, I_B=-100mA			-0.9	V
		I_C=-4A, I_B=-400mA			-1.05	V
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	I_C=-0.5A, I_B=-50mA			-50	mV
		I_C=-1A, I_B=-50mA			-90	mV
		I_C=-1A, I_B=-10mA			-190	mV
		I_C=-2A, I_B=-40mA			-220	mV
		I_C=-4A, I_B=-200mA			-275	mV
		I_C=-4A, I_B=-400mA			-210	mV
		I_C=-4.2A, I_B=-210mA			-310	mV
Base Emitter On Voltage (Note)	$V_{BE(ON)}$	V_{CE}=-2V, I_C=-2A			-0.85	V
DC Current Transfer Ratio (Note)	h_{FE}	V_{CE}=-2V, I_C=-0.5A	200			
		V_{CE}=-2V, I_C=-1A	200			
		V_{CE}=-2V, I_C=-2A	150			
		V_{CE}=-2V, I_C=-4A	120			
		V_{CE}=-2V, I_C=-6A	60			
Collector Capacitance	C_{OB}	V_{CB}=-10V, I_E=i_e=0A, f=1MHz		75	120	pF

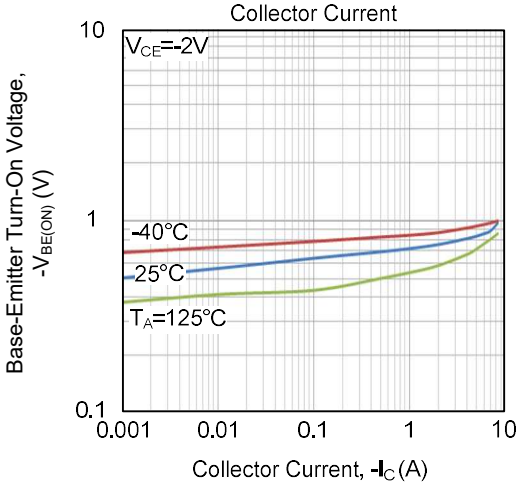
Note: Measured under pulsed conditions. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

■ TYPICAL CHARACTERISTICS

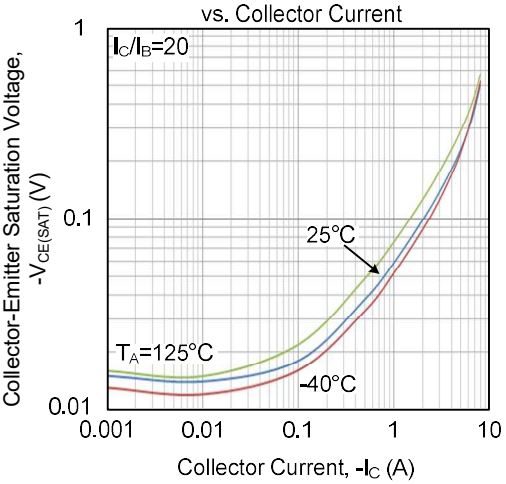
Collector Current vs. Collector-Emitter Voltage



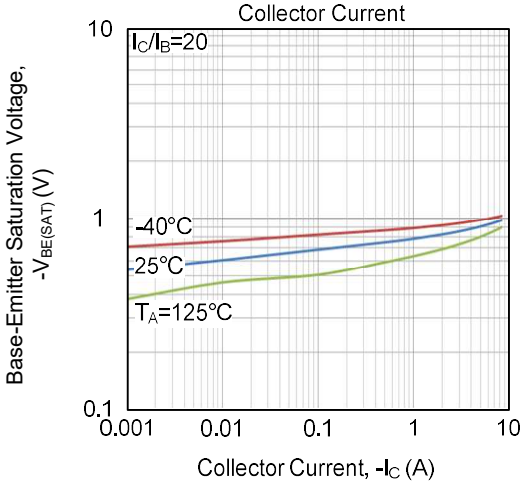
Base-Emitter Turn-On Voltage vs. Collector Current



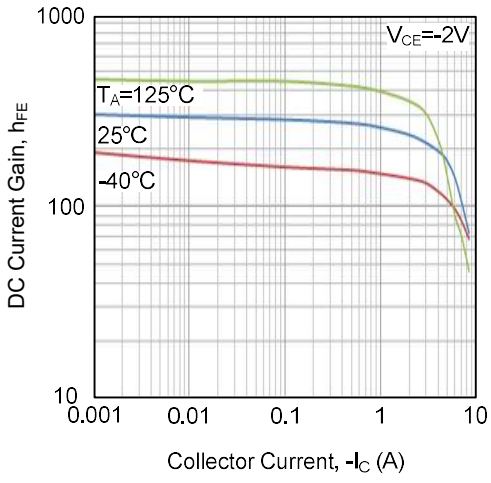
Collector-Emitter Saturation Voltage vs. Collector Current



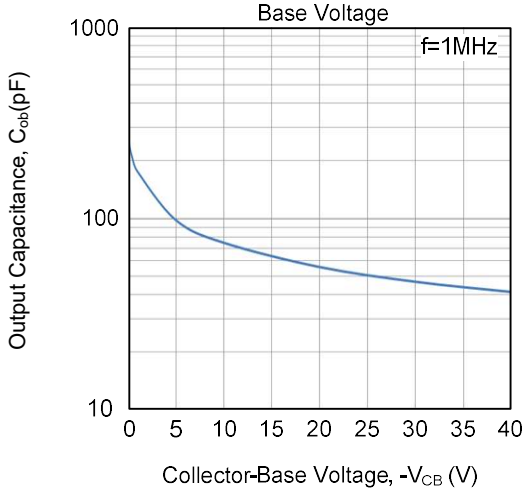
Base-Emitter Saturation Voltage vs. Collector Current



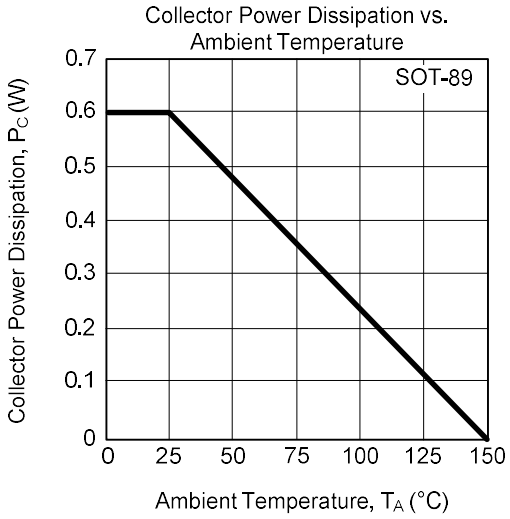
DC Current Gain vs. Collector Current



Output Capacitance vs. Collector-Base Voltage



■ TYPICAL CHARACTERISTICS



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