



USS4041NX

NPN EPITAXIAL SILICON TRANSISTOR

6.2A, 60V NPN LOW $V_{CE(SAT)}$ TRANSISTOR

DESCRIPTION

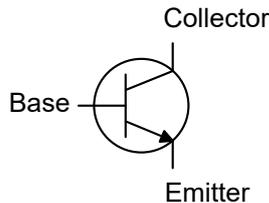
The **USS4041NX** is NPN low $V_{CE(SAT)}$ transistor in a medium power and flat lead SOT-89 Surface-Mounted Device (SMD) plastic package.

PNP complement: USS4041PX.

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



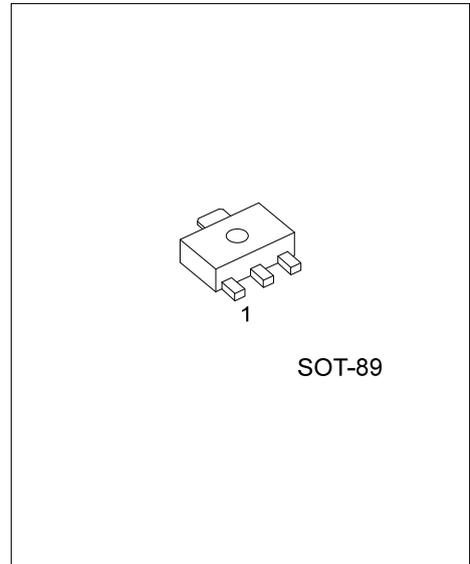
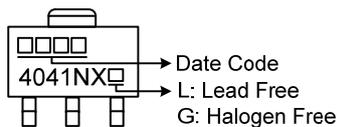
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS4041NXL-AB3-R	USS4041NXG-AB3-R	SOT-89	B	C	E	Tape Reel

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

USS4041NXG-AB3-R	(1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AB3: SOT-89 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



■ 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}	60	V
Emitter-Base Voltage	V _{EBO}	5	V
Base Current	I _B	1	A
Collector Current	I _C	6.2	A
Peak Collector Current (t _p ≤ 1ms)	I _{CM}	15	A
Collector Dissipation	P _C	1.5 (Note 2)	W
Junction Temperature	T _J	+150	°C
Ambient Temperature	T _A	-55 ~ +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. Device mounted on an FR4 PCB, 4-layer, tin-plated, mounting pad for collector 1 cm².

■ THERMAL DATA

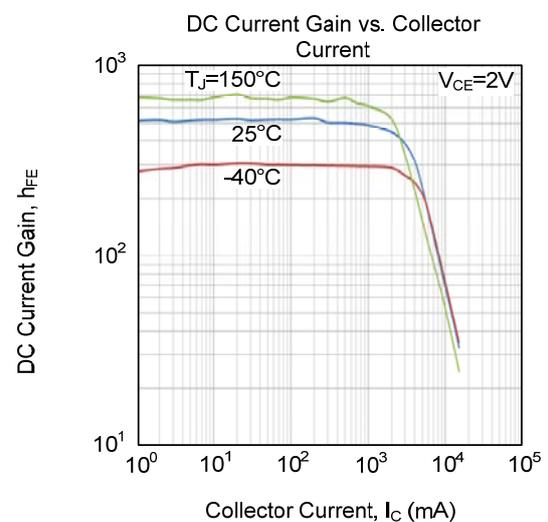
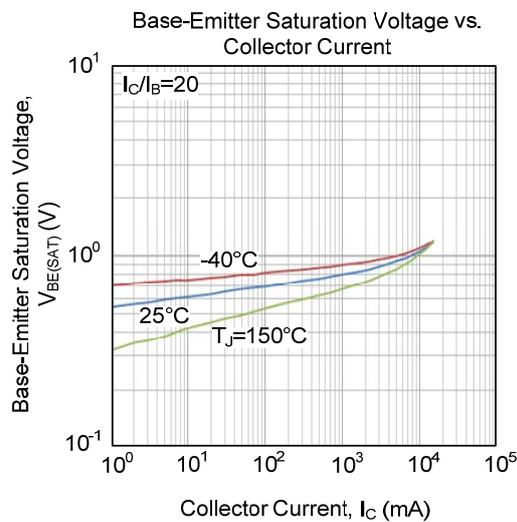
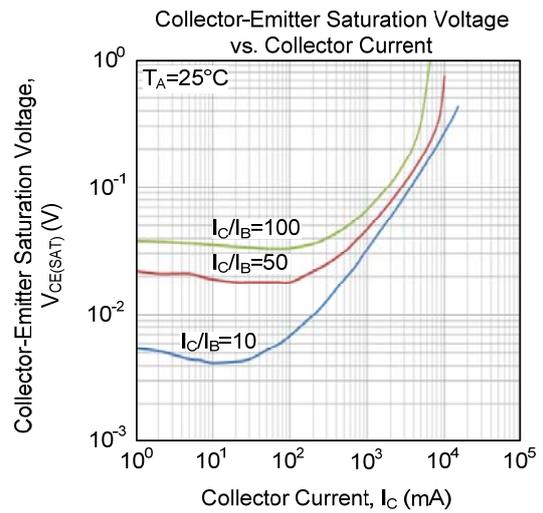
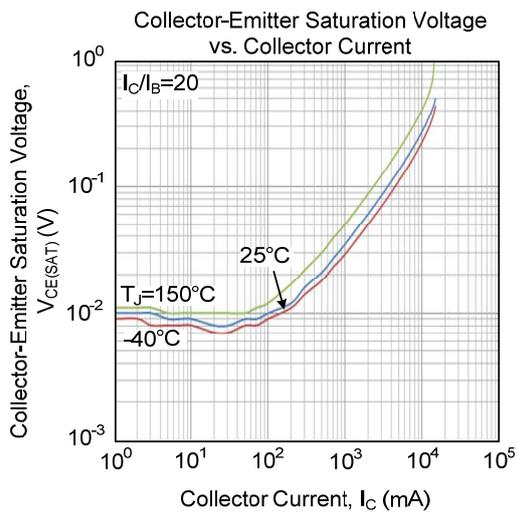
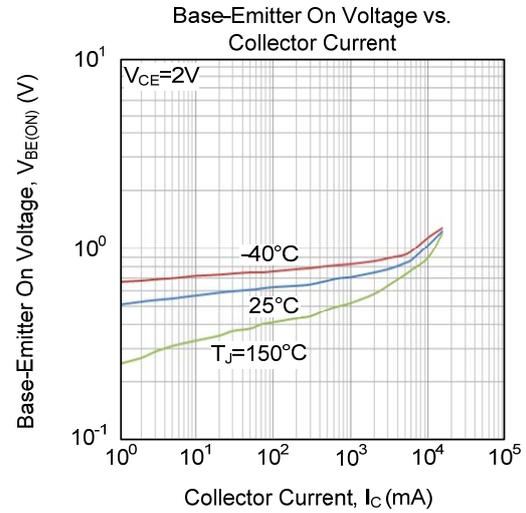
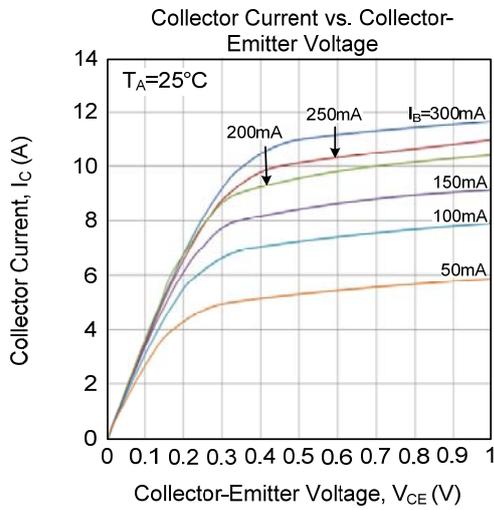
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	83 (Note)	°C/W

Note: Device mounted on an FR4 PCB, 4-layer, tin-plated, mounting pad for collector 1 cm².

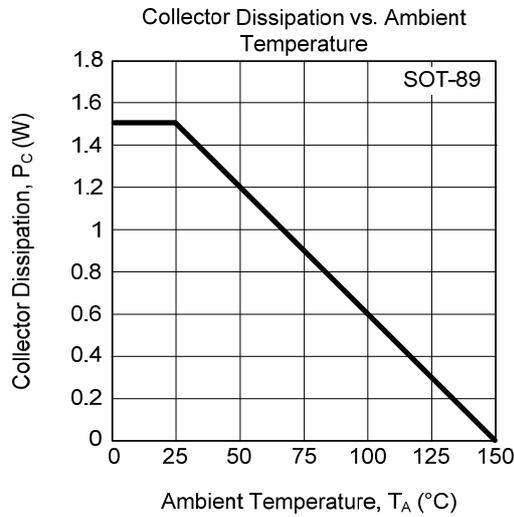
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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 =10mA, 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, T _A =25°C			100	nA
		V _{CB} =60V, I _E =0A, T _A =150°C			50	μA
Collector-Emitter Cut-Off Current	I _{CES}	V _{CE} =48V, V _{BE} =0A			100	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} =5V, I _C =0A			100	nA
Base Emitter On Voltage	V _{BE(ON)}	V _{CE} =2V, I _C =2A			0.85	V
Base-Emitter Saturation Voltage	V _{BE(SAT)}	I _C =1A, I _B =100mA			0.9	V
		I _C =4A, I _B =400mA			1.05	V
DC Current Transfer Ratio	h _{FE}	I _C =0.5A, V _{CE} =2V	300			
		I _C =1A, V _{CE} =2V	300			
		I _C =1A, V _{CE} =2V	250			
		I _C =4A, V _{CE} =2V	150			
		I _C =6A, V _{CE} =2V	75			
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _C =1A, I _B =10mA			80	mV
		I _C =1A, I _B =50mA			50	mV
		I _C =2A, I _B =40mA			145	mV
		I _C =4A, I _B =40mA			320	mV
		I _C =4A, I _B =200mA			150	mV
		I _C =6A, I _B =300mA			210	mV
Transition Frequency	f _T	V _{CE} =10V, I _C =100mA, f=100MHz		125		MHz

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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