



USS4041PX

Preliminary

PNP EPITAXIAL SILICON TRANSISTOR

60V PNP LOW SATURATION MEDIUM POWER TRANSISTOR

DESCRIPTION

The **USS4041PX** is an PNP low $V_{CE(SAT)}$ Breakthrough In Small Signal (BISS) transistor in a medium power.

NPN complement: USS4041NX.

FEATURES

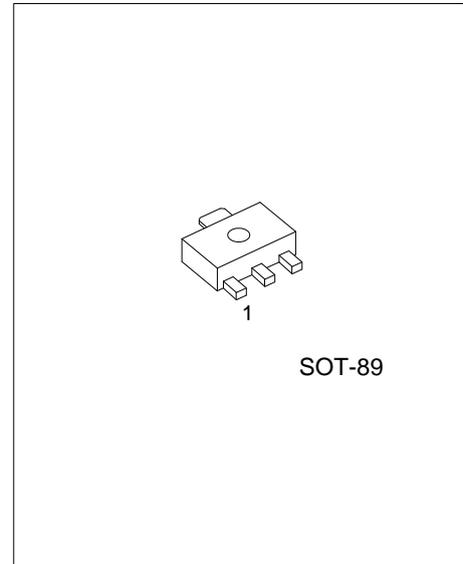
- * Very low collector-emitter saturation voltage $V_{CE(SAT)}$
- * High collector current capability I_C and I_{CM}
- * High collector current gain (h_{FE}) at high I_C
- * High energy efficiency due to less heat generation
- * Smaller required Printed-Circuit Board (PCB) area than for conventional transistors

ORDERING INFORMATION

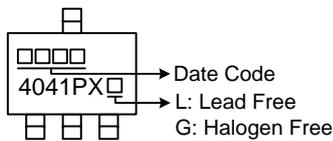
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USS4041PXL-AB3-R	USS4041PXG-AB3-R	SOT-89	B	C	E	Tape Reel

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

USS4041PXG-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 to Base Voltage	V _{CBO}	-60	V
Collector to Emitter Voltage	V _{CEO}	-60	V
Emitter to Base Voltage	V _{EBO}	-5	V
Base Current	I _B	-1	A
Collector Current	I _C	-5	A
Peak Collector Current (t _p ≤1ms)	I _{CM}	-15	A
Collector Dissipation	P _C	600	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. Single pulse, P_W=10ms.

3. Device mounted on FR-4 PCB with minimum recommended pad layout. (25×25×1.6mm)

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	83	°C/W
Junction to Case	θ _{JC}	60	°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			-60	V
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =-10mA			-60	V
Emitter-Base Breakdown Voltage	BV _{EBO}	I _E =-100μA			-5	V
Collector-Base Cut-off Current	I _{CBO}	V _{CB} =-60V, I _E =0A			-100	nA
Collector-Emitter Cut-off Current	I _{CES}	V _{CE} =-48V, V _{BE} =0V			-100	nA
Emitter-Base Cut-off Current	I _{EBO}	V _{EB} =-5V, I _C =0A			-100	nA
Base-Emitter On Voltage (Note)	V _{BE(ON)}	V _{CE} =-2V, I _C =-2V			-0.85	V
Base-Emitter Saturation Voltage (Note)	V _{BE(SAT)}	I _C =-4A, I _B =-100mA			-0.9	V
		I _C =-1A, I _B =-400mA			-1.05	V
Collector-Emitter Saturation Voltage (Note)	V _{CE(SAT)}	I _C =-1A, I _B =-50mA			-90	mV
		I _C =-1A, I _B =-10mA			-180	mV
		I _C =-2A, I _B =-40mA			-210	mV
		I _C =-4A, I _B =-200mA			-300	mV
		I _C =-4A, I _B =-400mA			-240	mV
DC Current Transfer Ratio (Note)	h _{FE}	I _C =-500mA, V _{CE} =-2V	200			
		I _C =-1A, V _{CE} =-2V	180			
		I _C =-2A, V _{CE} =-2V	150			
		I _C =-4A, V _{CE} =-2V	120			
		I _C =-6A, V _{CE} =-2V	80			
Delay Time	t _d	V _{CC} =-12.5V, I _C =-1A, I _{BON} =I _{BOFF} =0.05A		45		ns
Rise Time	t _r			60		ns
Turn-ON Delay Time (Note 1)	t _{D(ON)}			105		ns
Storage Time	t _s			440		ns
Fall Time	t _f			75		ns
Turn-OFF Delay Time	t _{D(OFF)}			515		ns
Transition Frequency (Note)	f _T		V _{CE} =-10V, I _C =-100mA, f=100MHz		110	
Collector Capacitance	C _{OB}	V _{CB} =-10V, I _E =I _e =0A, f=1MHz		85		pF

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

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