



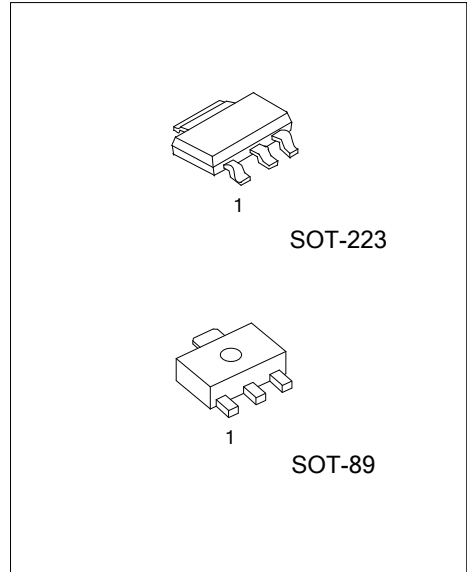
UP1868

PNP SILICON TRANSISTOR

**LOW SATURATION VOLTAGE
PNP POWER TRANSISTOR**

■ **FEATURES**

- * Low saturation voltage with equivalent on-resistance be $R_{CE(SAT)}$ about 40mΩ at 5A
- * High gain that can be replace parts for power MOSFET.



■ **ORDERING INFORMATION**

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UP1868G-AA3-R	UP1868G-AA3-R	SOT-223	B	C	E	Tape Reel
UP1868G-AB3-R	UP1868G-AB3-R	SOT-89	B	C	E	Tape Reel

<p>UP1868G-AA3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AA3: SOT-223, AB3: SOT-89 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING**

SOT-89	SOT-223
<p>Date Code UP1868□ L: Lead Free G: Halogen Free</p>	<p>UP1868□ □□□□ L: Lead Free G: Halogen Free Data Code</p>

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	-15	V
Collector-Emitter Voltage		V_{CEO}	-12	V
Emitter-Base Voltage		V_{EBO}	-6	V
Peak Pulse Current		$I_{C(PEAK)}$	-20	A
Continuous Collector Current		I_C	-6	A
Power Dissipation	SOT-223	P_C	3	W
	SOT-89		0.75	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^\circ\text{C}$

Note 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.

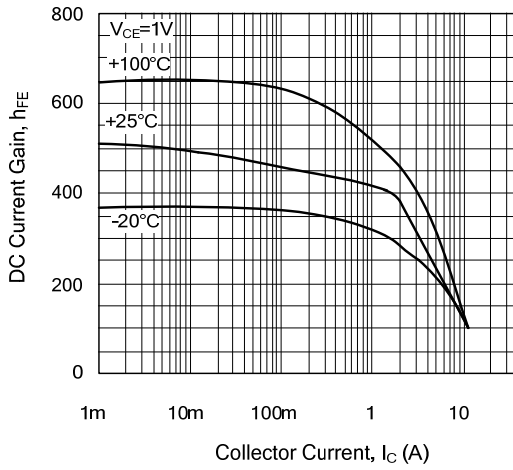
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage (Note)	BV_{CBO}	$I_C=-100\mu\text{A}$	-15			V
	BV_{CEO}	$I_C=-10\text{mA}$	-12			V
	BV_{EBO}	$I_E=-100\mu\text{A}$	-6			V
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=-500\text{mA}, I_B=-5\text{mA}$		-55	-100	mV
		$I_C=-2\text{A}, I_B=-50\text{mA}$		-132	-160	mV
		$I_C=-6\text{A}, I_B=-250\text{mA}$			-440	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=-6\text{A}, I_B=-250\text{mA}$		-1050	-1200	mV
Base-Emitter Turn-On Voltage (Note)	$V_{BE(ON)}$	$V_{CE}=-1\text{V}, I_C=-6\text{A}$		-950	-1050	mV
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-12\text{V}$			-10	nA
		$V_{CB}=-12\text{V}, T_A=100^\circ\text{C}$			-1.0	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=-6\text{V}$			-10	nA
DC Current Gain (Note)	h_{FE1}	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	300			
	h_{FE2}	$V_{CE}=-1\text{V}, I_C=-500\text{mA}$	300		1000	
	h_{FE3}	$V_{CE}=-1\text{V}, I_C=-5\text{A}$	200			
	h_{FE4}	$V_{CE}=-1\text{V}, I_C=-10\text{A}$	100			
Current Gain Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-100\text{mA}, f=50\text{MHz}$		80		MHz
Output Capacitance	C_{ob}	$V_{CB}=-20\text{V}, f=1\text{MHz}$		161		pF
Switching Times	t_{ON}	$I_C=-4\text{A}, I_{B1}=-400\text{mA}$		120		ns
	t_{OFF}	$I_{B2}=400\text{mA}, V_{CC}=-10\text{V}$		116		ns

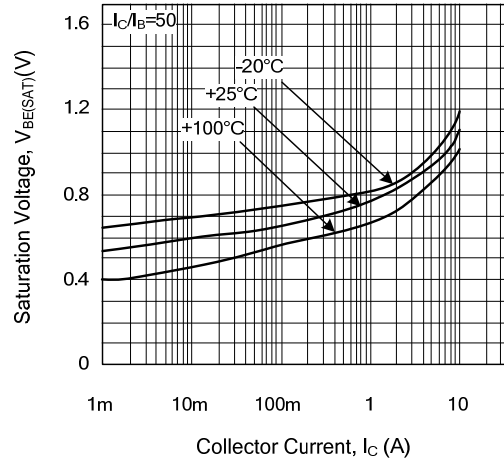
Note: Pulse test: Pulse Width=300 μs , Duty Cycle $\leq 2\%$

TYPICAL CHARACTERISTICS

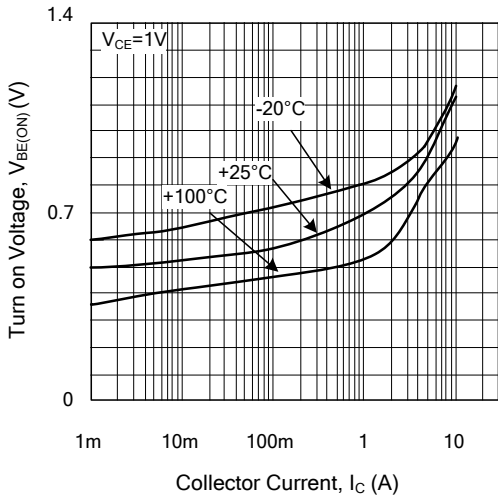
DC Current Gain vs. Collector Current



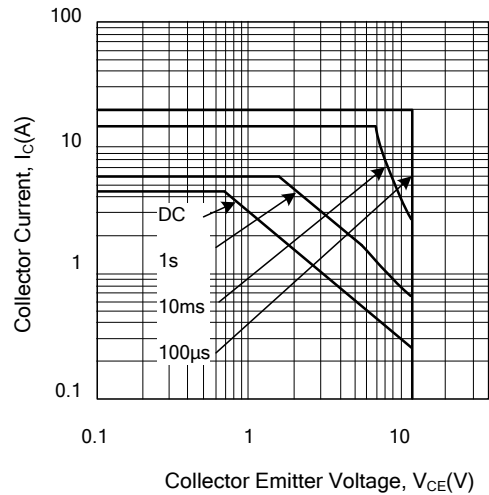
Saturation Voltage vs. Collector Current



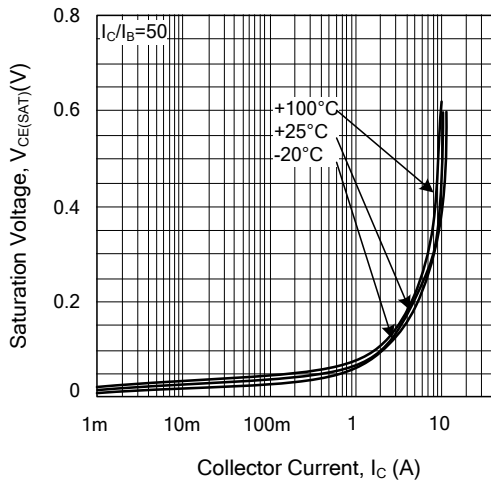
Turn on Voltage vs. Collector Current



Safe Operating Area



Saturation Voltage vs. Collector Current



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