

NPN SILICON TRANSISTOR

■ FEATURES

- * High current (max. 1 A)
- * Low voltage (max. 20 V).

■ APPLICATIONS

- * General purpose switching and amplification under high current conditions.

SOT-223



1. BASE
2. COLLECTOR
3. EMITTER

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage (Open Emitter)	V _{CBO}	32	V
Collector-Emitter Voltage (Open Base)	V _{CEO}	20	V
Emitter-Base Voltage (Open Collector)	V _{EBO}	5	V
Collector Current	DC	I _C	1
	Peak	I _{CM}	2
Peak Base Current	I _{BM}	200	mA
Total Power Dissipation (Ta ≤ 25°C)	P _D	1.35	W
Junction Temperature	T _J	150	°C
Operating Temperature	T _{OPR}	-45 ~ +150	°C
Storage Temperature	T _{STG}	-65 ~ +150	°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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance From Junction To Ambient	θ _{JA}	91	°C/W

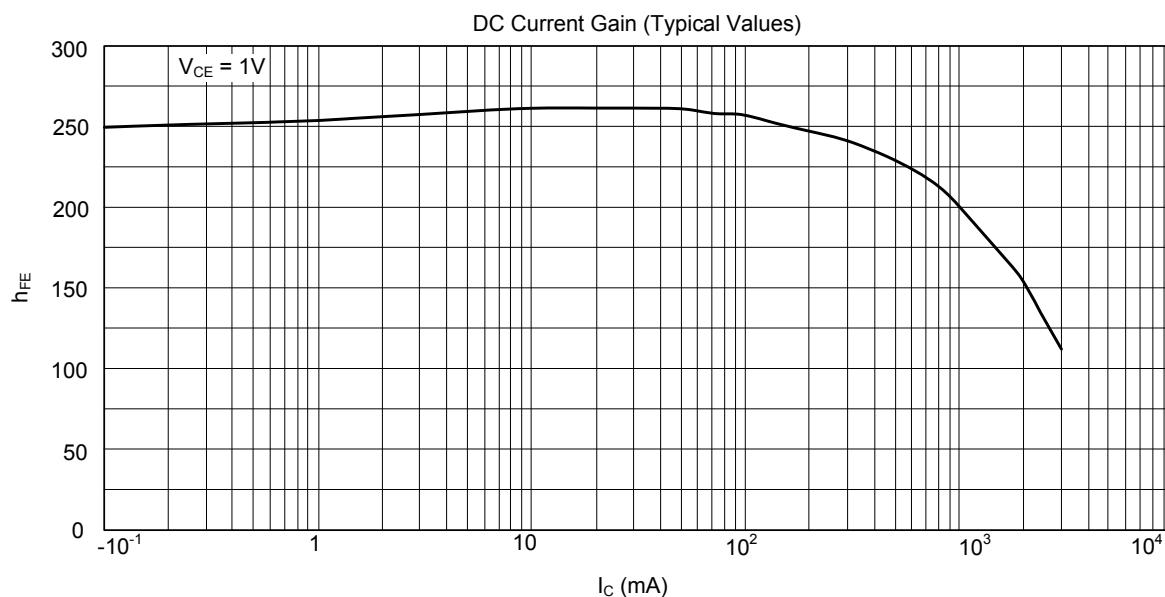
■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$			500	mV
Base-Emitter Voltage	V_{BE}	$I_C = 5\text{mA}, V_{CE} = 10\text{V}$		620		mV
		$I_C = 1\text{A}, V_{CE} = 1\text{V}$			1	V
Collector Cut-off Current	I_{CBO}	$I_E = 0, V_{CB} = 25\text{V}$			100	nA
		$I_E = 0, V_{CB} = 25\text{V}, T_J = 150^\circ\text{C}$			10	μA
Emitter Cut-off Current	I_{EBO}	$I_C = 0, V_{EB} = 5\text{V}$			100	nA
DC Current Gain	h_{FE}	$I_C = 5\text{mA}, V_{CE} = 10\text{V}$	50			
		$I_C = 500\text{mA}, V_{CE} = 1\text{V}$	85		300	
		$I_C = 1\text{A}, V_{CE} = 1\text{V}$	60			
Collector Capacitance	C_C	$I_E = i_e = 0, V_{CB} = 5\text{V}, f = 1\text{MHz}$		48		pF
Transition Frequency	f_T	$I_C = -10\text{mA}, V_{CE} = -5\text{V}, f = 100\text{MHz}$	40			MHz
DC Current Gain Ratio of the Complementary Pairs	$\frac{h_{FE1}}{h_{FE2}}$	$ I_C = 0.5\text{A}, V_{CE} = 1\text{V}$			1.6	

■ CLASSIFICATION OF h_{FE}

RANK	16	25
RANGE	100~250	200~300

■ TYPICAL CHARACTERISTIC



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