



SOT-23 Plastic-Encapsulate Transistors

STD123S TRANSISTOR (NPN)

FEATURES

- Low saturation medium current application
- Extremely low collector saturation voltage
- Suitable for low voltage large current drivers
- High DC current gain and large current capability
- Low on resistance : $R_{ON}=0.6\Omega(\text{Max.})$ ($I_B=1\text{mA}$)

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

Marking:123

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	6.5	V
I_C	Collector Current -Continuous	1	A
P_C	Collector Power Dissipation	350	mW
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=50\mu\text{A}$, $I_E=0$	20			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	15			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=50\mu\text{A}$, $I_C=0$	6.5			V
Collector cut-off current	I_{CBO}	$V_{CB}=20\text{V}$, $I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=6\text{V}$, $I_C=0$			0.1	μA
DC current gain	h_{FE}	$V_{CE}=1\text{V}$, $I_C=100\text{mA}$	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500\text{mA}$, $I_B=50\text{mA}$			0.3	V
Transition frequency	f_T	$V_{CE}=5\text{V}$, $I_C=50\text{mA}$		260		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$		5		pF
On resistance	R_{ON}	$f=1\text{KHz}$, $I_B=1\text{mA}$, $V_{IN}=0.3\text{V}$		0.6		Ω

Typical characteristics

STD123S

Fig. 1 $P_C - T_a$

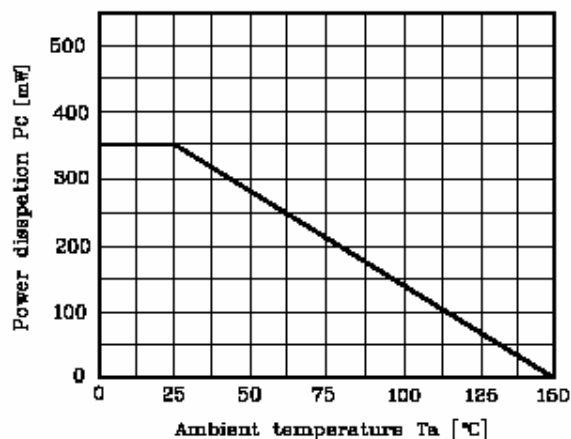


Fig. 2 $V_{CE(sat)} - I_C$

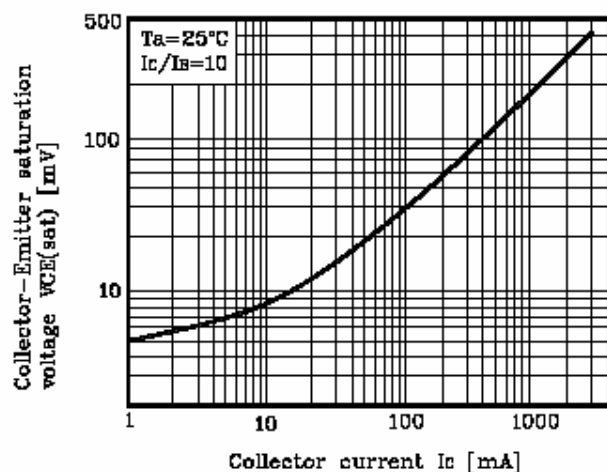


Fig. 2 $C_{ob} - V_{CB}$

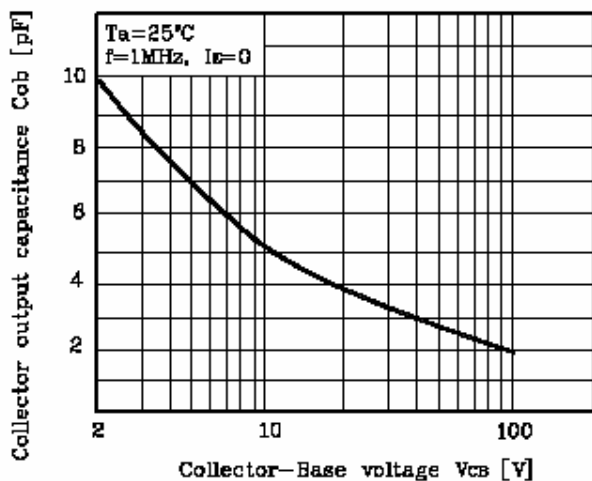


Fig. 4 $h_{FE} - I_C$

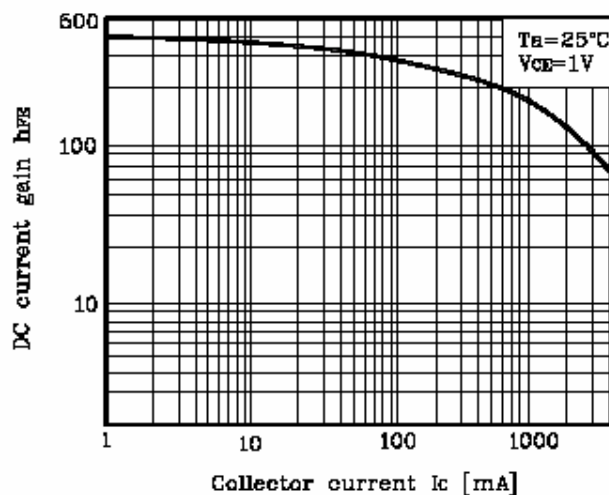


Fig. 5 $R_{ON} - I_B$

