

TRANSISTOR (NPN)

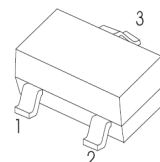
FEATURES

- Low Collector to Emitter Saturation Voltage
- Mini Type Package

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	500	mA
P_C	Collector Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	625	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

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1. BASE
2. EMITTER
3. COLLECTOR

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}$, $I_E=0$	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}$, $I_B=0$	25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	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}	$V_{EB}=5\text{V}$, $I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=10\text{V}$, $I_C=0.15\text{A}$	85		340	
	$h_{FE(2)}^*$	$V_{CE}=10\text{V}$, $I_C=0.5\text{A}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=0.3\text{A}$, $I_B=0.03\text{A}$			0.6	V
Transition frequency	f_T	$V_{CE}=10\text{V}$, $I_C=0.05\text{A}$, $f=200\text{MHz}$		200		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$			15	pF

*Pulse test: pulse width $\leq 350\mu\text{s}$, duty cycles $\leq 2.0\%$.

CLASSIFICATION OF $h_{FE(1)}$

RANK	Q	R	S
RANGE	85 - 170	120 - 240	170 - 340
MARKING	WQ1	WR1	WS1