

SOT-23 Plastic-Encapsulate Transistors

2SD2142 TRANSISTOR (NPN)

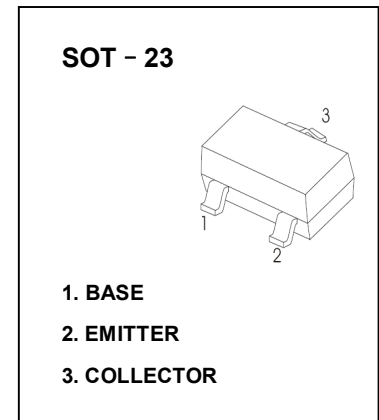
FEATURES

- Darlington Connection for a High h_{FE}
- High Input Impedance

MARKING: R1M

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	32	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current	300	mA
P_C	Collector Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	625	$^\circ\text{C}/\text{W}$
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^\circ\text{C}$



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}$, $I_B=0$	32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$	12			V
Collector cut-off current	I_{CBO}	$V_{CB}=30\text{V}$, $I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=12\text{V}$, $I_C=0$			0.1	μA
DC current gain	h_{FE}	$V_{CE}=3\text{V}$, $I_C=100\text{mA}$	5000			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=200\text{mA}$, $I_B=0.2\text{mA}$			1.4	V
Transition frequency	f_T	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$		200		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$		2.5		pF