

深圳市晶泰源电子有限公司

MMBTA13,14 TRANSISTOR (NPN)

FEATURES

Darlington Amplifier

Marking : MMBTA13:K2D; MMBTA14:K3D

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current -Continuous	0.3	A
P_C	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	417	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

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

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	30		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=100\mu\text{A}, I_B=0$	30		V
Collector-emitter breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	10		V
Collector cut-off current	I_{CBO}^*	$V_{CB}=30\text{V}, I_E=0$		0.1	μA
Emitter cut-off current	I_{EBO}^*	$V_{EB}=10\text{V}, I_C=0$		0.1	μA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=5\text{V}, I_C=10\text{mA}$	5000		
	$h_{FE(2)}^*$	$V_{CE}=5\text{V}, I_C=100\text{mA}$	10000		
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		2	V
Base-emitter voltage	V_{BE}^*	$V_{CE}=5\text{V}, I_C=100\text{mA}$		2.0	V
Transition frequency	f_T	$V_{CE}=5\text{V}, I_C=10\text{mA}$ $f=100\text{MHz}$	125		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		12	pF

* Pulse Test : pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.