2SD1513 TRANSISTOR (NPN)

TO-92

1.EMITTER
2.COLLECTOR
3.BASE

FEATURES

- Low Collector Saturation
- High DC Current Gain
- Complementary to The 2SB1068 PNP Transistor

ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2SD1513	TO-92	Bulk	1000pcs/Bag
2SD1513-TA	TO-92	Tape	2000pcs/Box

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	16	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	2	A
P_C	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	200	℃ /W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 0.1mA,I_E=0	20			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	16			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=0.1mA,I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=16V,I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=6V,I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=2V, I_C=100mA	135		650	
	$h_{FE(2)}$	V_{CE}=2V, I_C=1.5A	100			
Collector-emitter saturation voltage	$V_{CE(sat)(1)}$	I_C=1A,I_B=10mA			0.4	V
	$V_{CE(sat)(2)}$	I_C=1.5A,I_B=20mA			0.5	V
	$V_{CE(sat)(3)}$	I_C=1.5A,I_B=75mA			0.5	V
Base-emitter saturation voltage	$V_{BE\ (sat)}$	I_C=1.5mA,I_B=75mA			1.2	V
Base-emitter voltage	V_{BE}	V_{CE}=6V, I_C=5mA	0.55		0.65	V
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz		28		pF
Transition frequency	f_T	V_{CE}=10V,I_C=50mA	100			MHz

CLASSIFICATION OF $h_{FE\ (1)}$

RANK	L	K	U
RANGE	135-270	200-400	300-650