



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-220 Plastic-Encapsulate Transistors

3DD13009 TRANSISTOR (NPN)

FEATURES

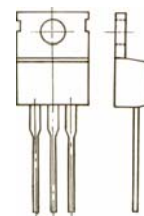
- power switching applications

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_{C}	Collector Current -Continuous	12	A
P_{C}	Collector Power Dissipation	2	W
T_{J}	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

TO-220

1. BASE
2. COLLECTOR
3. EMITTER



1 2 3

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	$I_{\text{C}}=1\text{mA}, I_{\text{E}}=0$	700			V
Collector-emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	$I_{\text{C}}=10\text{mA}, I_{\text{B}}=0$	400			V
Emitter-base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	$I_{\text{E}}=1\text{mA}, I_{\text{C}}=0$	9			V
Collector cut-off current	I_{CBO}	$V_{\text{CB}}=700\text{V}, I_{\text{E}}=0$			100	μA
Collector cut-off current	I_{CEO}	$V_{\text{CE}}=400\text{V}, I_{\text{B}}=0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{\text{EB}}=9\text{V}, I_{\text{C}}=0$			100	μA
DC current gain	h_{FE}	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=3\text{A}$	8		40	
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}}=8\text{A}, I_{\text{B}}=1.6\text{A}$			1.5	V
Base-emitter saturation voltage	$V_{\text{BE(sat)}}$	$I_{\text{C}}=8\text{A}, I_{\text{B}}=1.6\text{A}$			1.6	V
Transition frequency	f_{T}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=500\text{mA}, f=1\text{MHz}$	4			MHz
Fall time	t_{f}	$I_{\text{C}}=8\text{A}, I_{\text{B1}}=-I_{\text{B2}}=1.6\text{A}$ $V_{\text{CC}}=125\text{V}$			0.9	μs
Storage time	t_{s}				4	μs

CLASSIFICATION OF h_{FE}

Rank						
Range	8-15	15-20	20-25	25-30	30-35	35-40

Typical Characteristics

3DD13009

