

TO-220 Plastic-Encapsulate Transistors

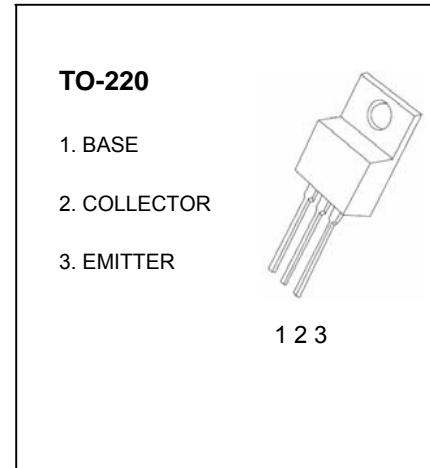
2SC3098 TRANSISTOR (NPN)

FEATURES

Power amplifier applications

MAXIMUM RATINGS* T_A=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	1400	V
V _{CEO}	Collector-Emitter Voltage	800	V
V _{EBO}	Emitter-Base Voltage	9	V
I _C	Collector Current –Continuous	4.0	A
I _{cp}	Collector Current –Pulse	8.0	A
P _C	Collector Dissipation	2	W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C



Marking: N ZP 2SC3098 ****

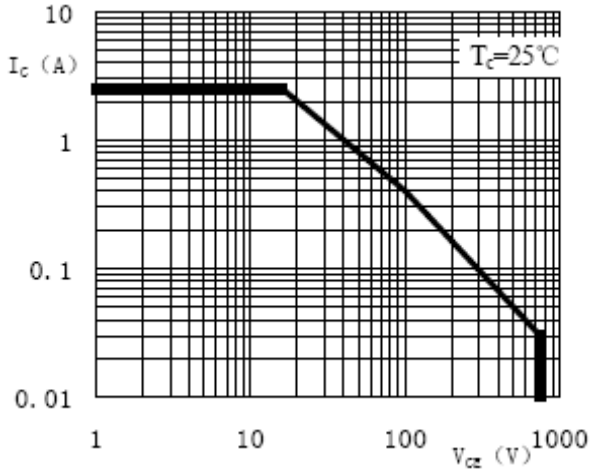
ELECTRICAL CHARACTERISTICS(T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =0.1mA, I _E =0	1400			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =1mA, I _B =0	800			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =0.1mA, I _C =0	9			V
Collector cut-off current	I _{CB0}	V _{CB} =1400V, I _E =0			100	μA
Emitter cut-off current	I _{EBO}	V _{EB} =9V, I _C =0			100	μA
DC current gain	h _{FE}	V _{CE} =5V, I _C =200mA	10		40	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =1A, I _B =0.2A		0.5	3	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =1A, I _B =0.2A		0.9	1.5	V
Transition frequency	f _T	V _{CE} =10V, I _C =100mA	3			MHz
Collector output capacitance	C _{ob}	V _{CB} =10V, f=1MHz		30		pF
Raise time	t _r	UI9600, I _C =0.5A			4	μS
Storage time	t _{stg}		2		8	μS
Fall time	t _f				4	μS

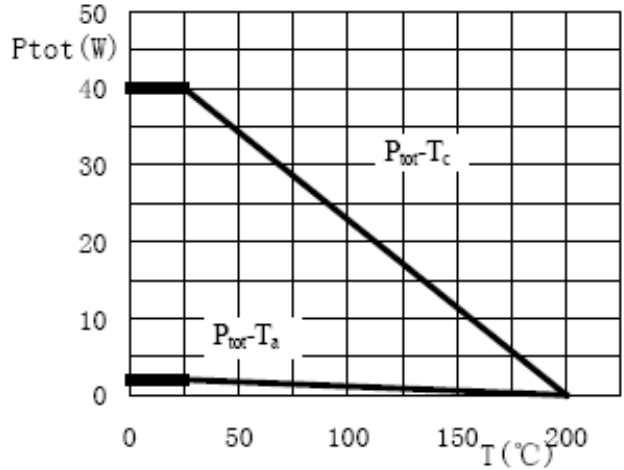
Rank	CLASSIFICATION OF h _{FE} V _{CE} =5V, I _C =200mA		
Range	10--20	20--30	30--40

Characteristic curve

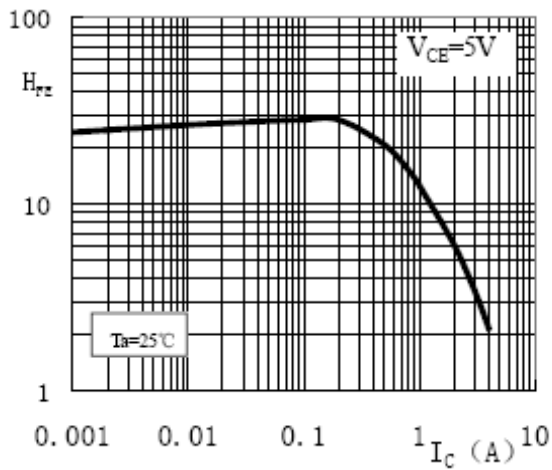
Secure working area (DC)



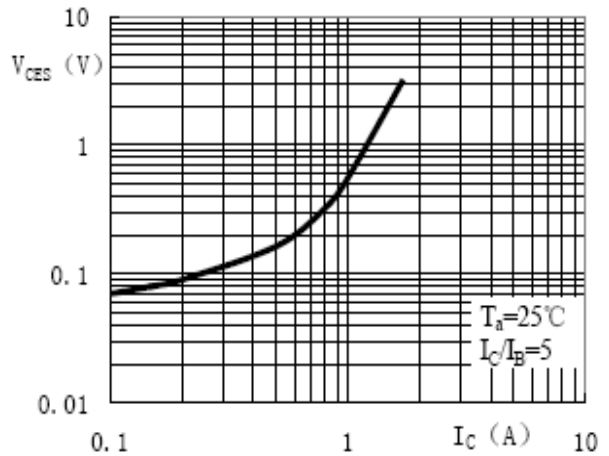
Ptot ~ T Relation curve



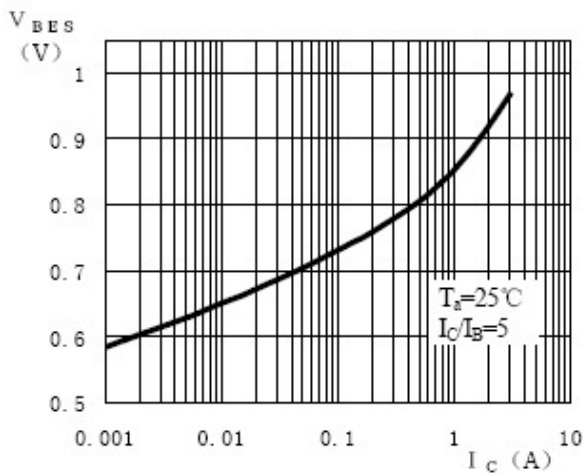
HFE ~ Ic Relation curve

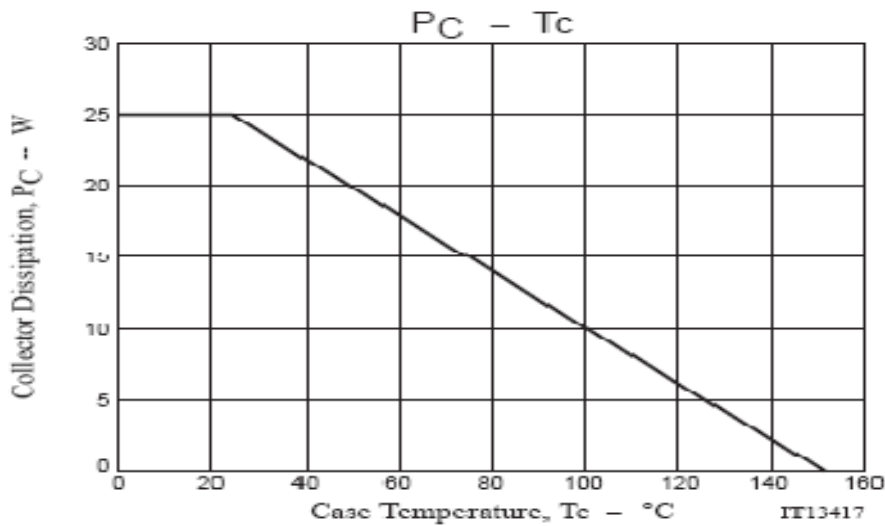
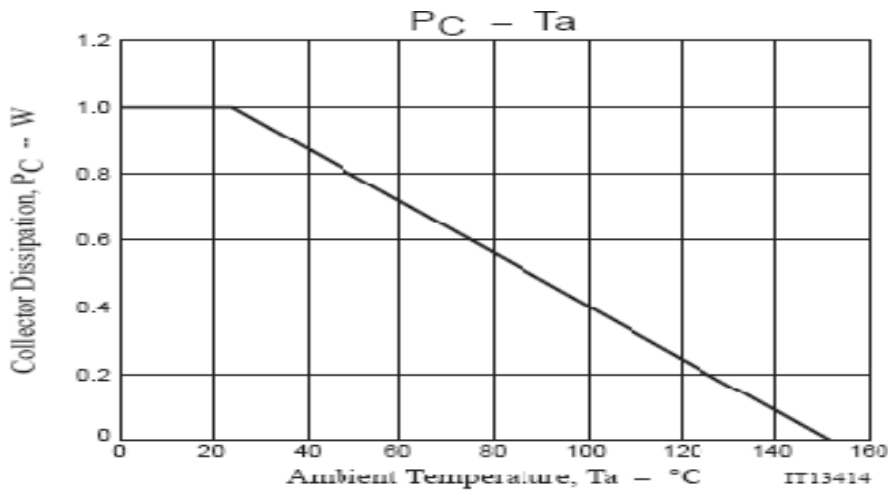


Vces ~ Ic Relation curve



Vbes ~ Ic Relation curve





$$\theta_{JC} = \frac{T_{a(H)} - T_{a(L)}}{P_C} = \frac{150^{\circ}\text{C} - 25^{\circ}\text{C}}{25\text{W}} = 5^{\circ}\text{C/W}$$

$$\theta_{JA} = \frac{T_{a(H)} - T_{a(L)}}{P_C} = \frac{150^{\circ}\text{C} - 25^{\circ}\text{C}}{1\text{W}} = 125^{\circ}\text{C/W}$$

