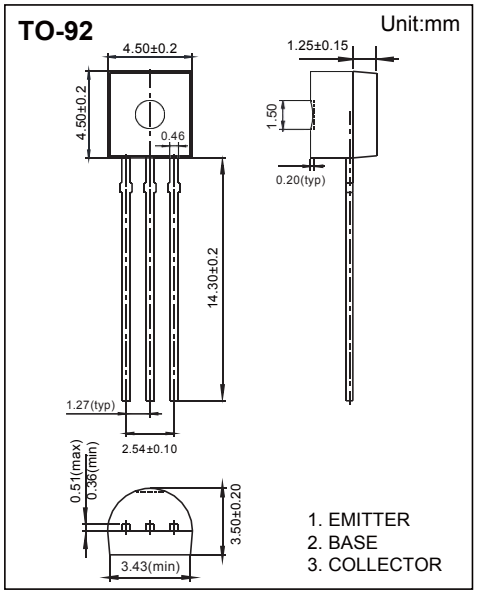
Transistor

NPN Transistors

2N2222



■ Features

- High current (max. 800 mA)
- Low voltage (max. 40 V)
- Complementary to 2N2907

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	60	V
Collector - Emitter Voltage	V_{CEO}	30	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	0.8	A
Peak Collector Current	I_{CM}	0.8	
Peak Base Current	I_{BM}	0.2	
Collector Power Dissipation $T_{amb} \leqslant 25$ °C	P_C	500	mW
Collector Power Dissipation $T_{case} \leqslant 25$ °C		1.2	W
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	350	℃/W
Thermal Resistance From Junction to Case	$R_{\theta JC}$	146	
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-65 to 150	

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collecto- base breakdown voltage	V_{CBO}	I_C= 100 μA， I_E=0	60			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 0.1 mA， I_B=0	30			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μA， I_C=0	5			
Collector cut-off current	I_{CBO}	V_{CB}= 50 V , I_E=0			10	nA
		V_{CB}= 50 V , I_E=0 ,T_{amb}=150 °C			10	μA
Emitter cut-off current	I_{EBO}	V_{EB}= 3V , I_C=0			10	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=150 mA, I_B= 15mA			0.4	V
		I_C=500 mA, I_B= 50mA			1.6	
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=150 mA, I_B= 15mA			1.3	
		I_C=500 mA, I_B= 50mA			2.6	
DC current gain	$h_{FE(1)}$	V_{CE}= 10V, I_C= 0.1mA	35			
	$h_{FE(2)}$	V_{CE}= 10V, I_C= 1mA	50			
	$h_{FE(3)}$	V_{CE}= 10V, I_C= 10mA	75			
	$h_{FE(4)}$	V_{CE}= 1V, I_C= 150mA	50			
	$h_{FE(5)}$	V_{CE}= 10V, I_C= 150mA	100		300	
	$h_{FE(6)}$	V_{CE}= 10V, I_C= 500mA	35			
Turn-on time	t_{on}	I_{Con} = 150 mA; I_{Bon} = 15 mA; I_{Boff} = -15 mA			35	ns
Delay time	t_d				10	
Rise time	t_r				25	
Turn-off time	t_{off}				250	
Storage time	t_s				200	
Fall time	t_f				60	
Collector capacitance	C_{ob}	V_{CB}= 10V, I_E=i_e=0,f=1MHz			8	pF
Transition frequency	f_T	V_{CE}= 20V, I_C= 20mA,f=100MHz	250			MHz