



TO-92 Plastic-Encapsulate Transistors

13003(1.43) TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM}: 0.9 \text{ W (Tamb=25}^{\circ}\text{C)}$$

Collector current

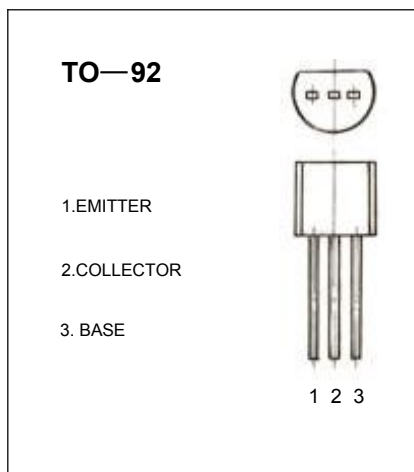
$$I_{CM}: 1.0 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO}: 750 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55^{\circ}\text{C to } +150^{\circ}\text{C}$$



ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=1\text{mA}, I_E=0$	750			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	480			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\text{mA}, I_C=0$	9.0			V
Collector cut-off current	I_{CBO}	$V_{CB}=750\text{V}, I_E=0$			100	μA
Collector cut-off current	I_{CEO}	$V_{CE}=480\text{V}, I_B=0$			50	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7\text{V}, I_C=0$			10	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=0.4\text{A}$	20		40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=1.5\text{A}, I_B=0.5\text{A}$			3.0	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=0.5\text{A}, I_B=0.1\text{A}$			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=0.5\text{A}, I_B=0.1\text{A}$			1	V
Fall time	t_f	$I_C=1\text{A}$			0.7	μs
Storage time	t_s	$I_{B1}=-I_{B2}=0.2\text{A}$			4	μs
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=100\text{mA}$ $f=1\text{MHz}$	4.0			MHz

CLASSIFICATION OF h_{FE}

Rank	1	2	3	4
Range	20-25	25-30	30-35	35-40