



TO-92 Plastic-Encapsulate Transistors

A42 TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM} : 0.625 \text{ W (} T_{amb}=25 \text{)}$$

Collector current

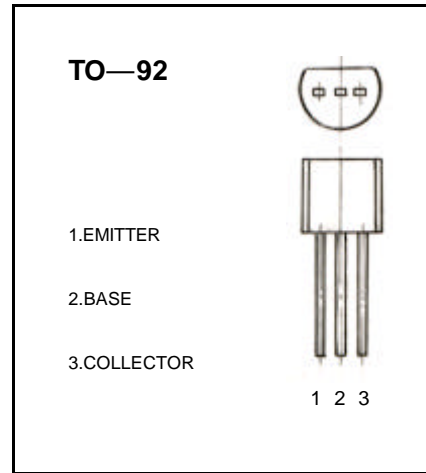
$$I_{CM} : 0.5 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : 300 \text{ V}$$

Operating and storage junction temperature range

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



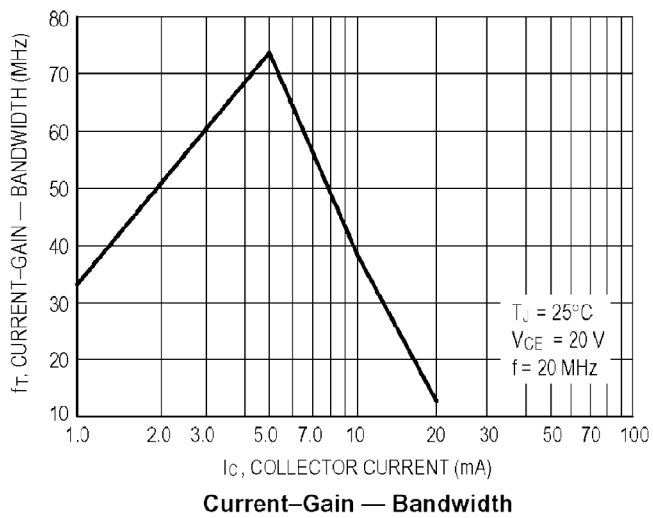
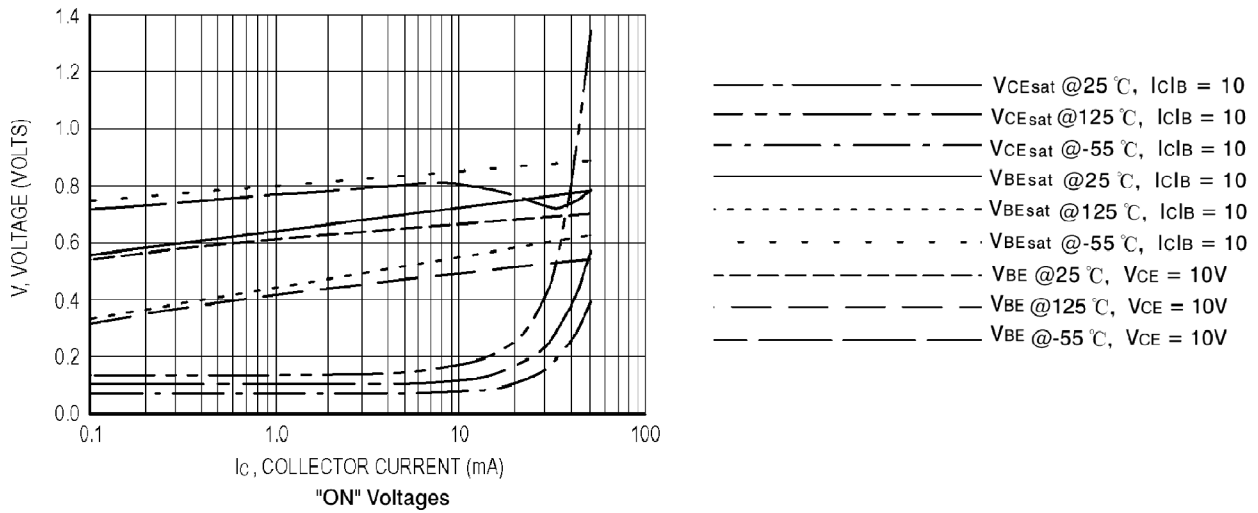
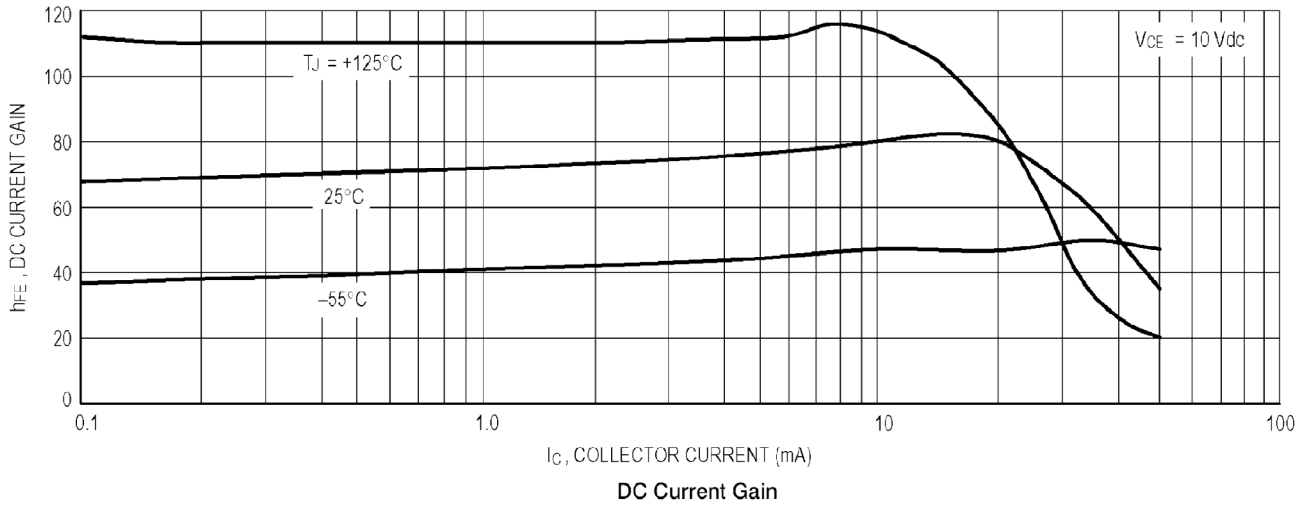
ELECTRICAL CHARACTERISTICS ($T_{amb}=25$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100 \mu A, I_E=0$	300			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1 \text{ mA}, I_B=0$	300			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100 \mu A, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=200 \text{ V}, I_E=0$			0.25	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5 \text{ V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=10 \text{ V}, I_C=1 \text{ mA}$	60			
	$h_{FE(2)}$	$V_{CE}=10 \text{ V}, I_C=10 \text{ mA}$	80		250	
	$H_{FE(3)}$	$V_{CE}=10 \text{ V}, I_C=30 \text{ mA}$	75			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=20 \text{ mA}, I_B=2 \text{ mA}$			0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=20 \text{ mA}, I_B=2 \text{ mA}$			0.9	V
Transition frequency	f_T	$V_{CE}=20 \text{ V}, I_C=10 \text{ mA}, f=30 \text{ MHz}$	50			MHz

CLASSIFICATION OF $h_{FE(2)}$

Rank	A	B ₁	B ₂	C
Range	80-100	100-150	150-200	200-250

Typical Characteristics



TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYP		0.050TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Ö		1.600		0.063
\downarrow	0.000	0.380	0.000	0.015