

## TO-220 NPN SILICON POWER TRANSISTOR

AV13005 TRANSISTOR ( NPN )

### FEATURES

Power dissipation

$$P_{CM} : 1.5 \text{ W ( } T_{amb}=25^{\circ}\text{C )}$$

Collector current

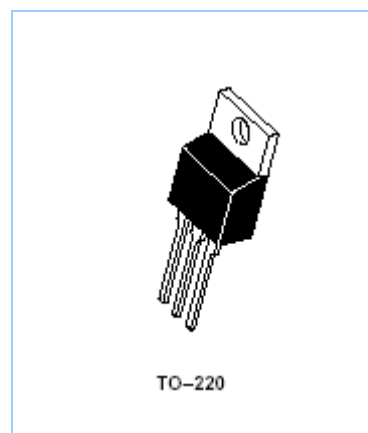
$$I_{CM} : 4.0 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : 700 \text{ V}$$

Operating and storage junction temperature range

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



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

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1000 \mu\text{A}, I_E = 0$	700		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	400		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1000 \mu\text{A}, I_C = 0$	9		V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 700 \text{ V}, I_E = 0$		1000	$\mu\text{A}$
Collector cut-off current	$I_{CEO}$	$V_{CE} = 400 \text{ V}, I_B = 0$		100	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 9 \text{ V}, I_C = 0$		1000	$\mu\text{A}$
DC current gain	$H_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 1000 \text{ mA}$	10	40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2000 \text{ mA}, I_B = 500 \text{ mA}$		0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2000\text{mA}, I_B = 500\text{mA}$		1.6	V
Transition frequency	$f_T$	$V_{CE} = 10 \text{ V}, I_C = 500 \text{ mA}$ $f = 1\text{MHz}$	5		MHz
Fall time	$T_F$	$I_{B1} = -I_{B2} = 0.4\text{A}, I_C = 2\text{A}$ $V_{CC} = 120\text{V}$		0.9	$\mu\text{S}$
Storage time	$T_S$			4.0	

### CLASSIFICATION OF $H_{FE(2)}$

Rank	A	B <sub>1</sub>	B <sub>2</sub>	C	D	E
Range	10-15	15-20	20-25	25-30	30-35	35-40

Typical Characteristics

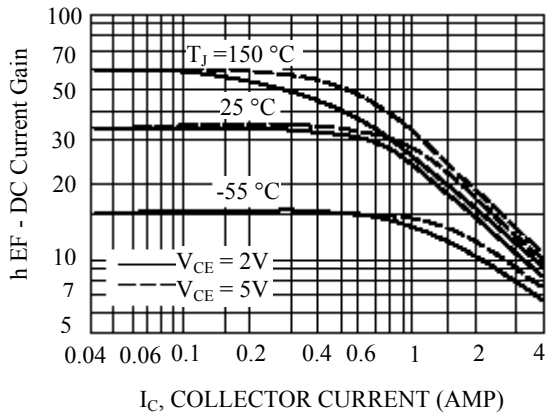


Figure 1. DC Current Gain

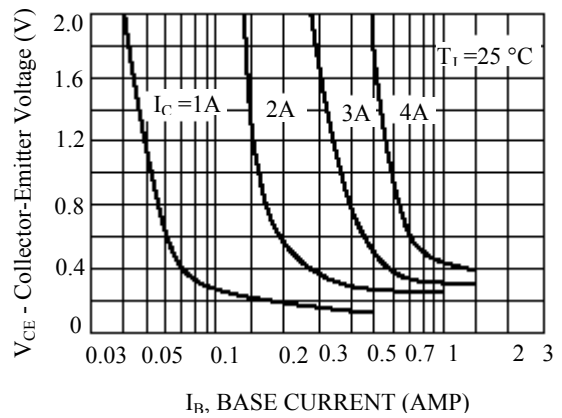


Figure 2. Collector Saturation

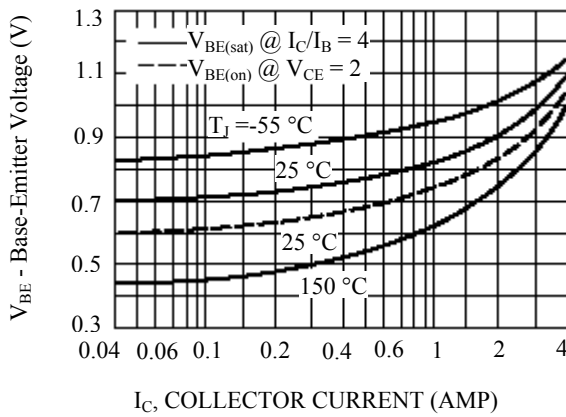


Figure 3. Base-Emitter Voltage

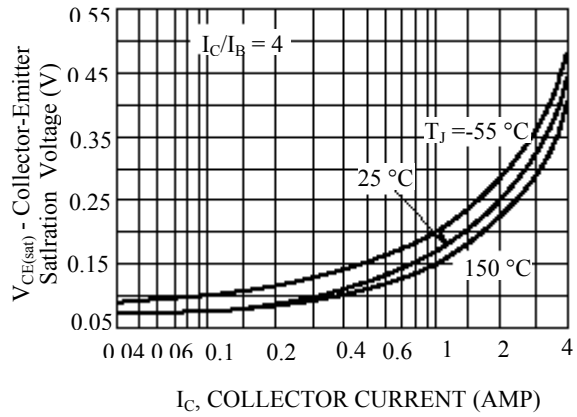


Figure 4. Collector-Emitter Saturation

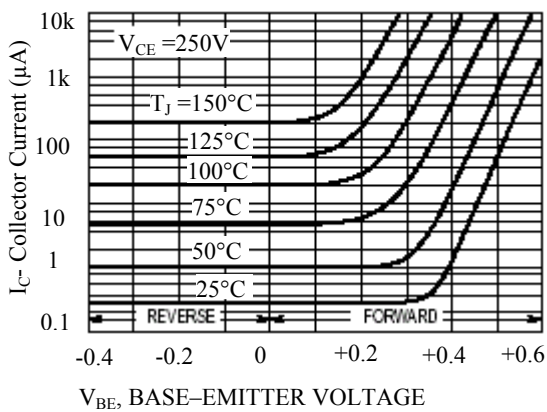


Figure 5. Collector Cutoff Region

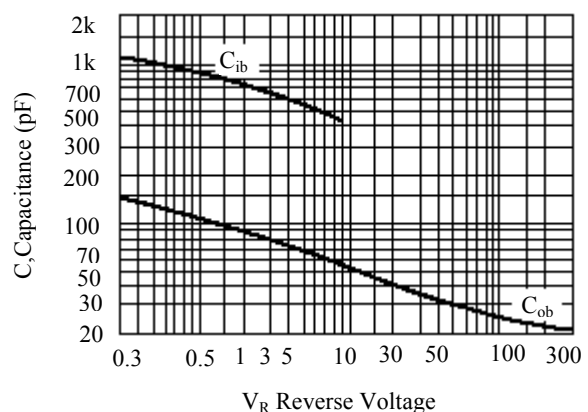


Figure 6. Capacitance