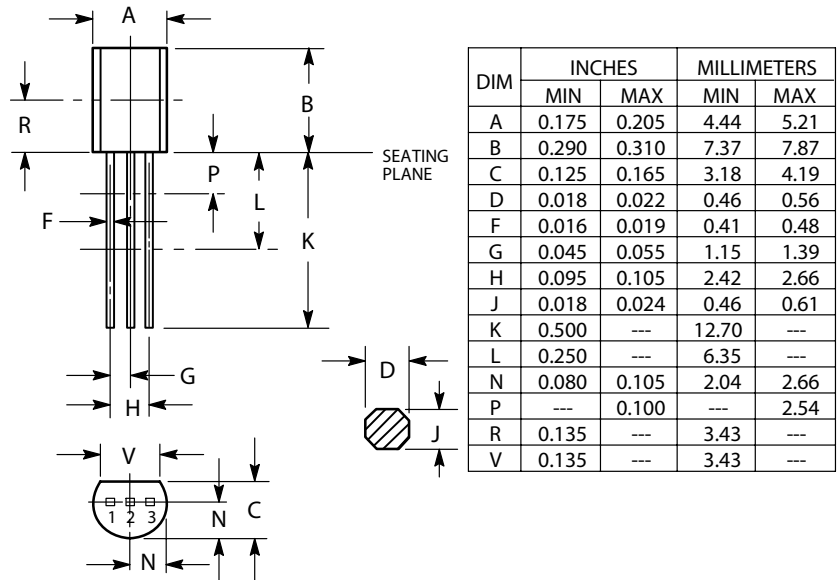


POWER TRANSISTOR E13002

SWITCHING REGULATOR APPLICATION

- High speed switching
- Suitable for switching regulator and motor control
- Case : TO-92 molded plastic body

TO-92



NPN SILICON TRANSISTOR

FEATURES $T_c=25^\circ\text{C}$ unless otherwise specified

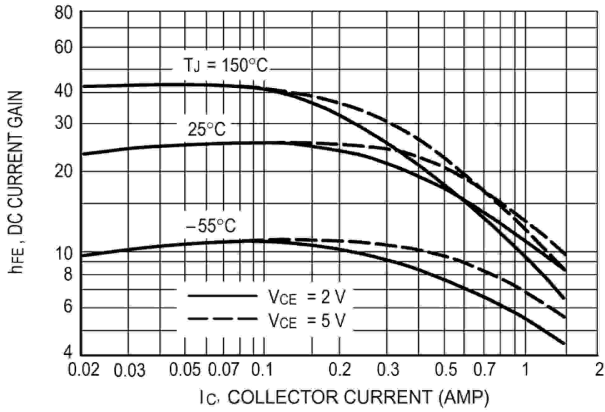
Parameter	Symbol	Value	UNIT
Power dissipation	P_{CM}	1.0	W
Collector current	I_{CM}	1.0	A
Operating and storage junction temperature range	T_J, T_{STG}	-55°C to $+150^\circ\text{C}$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS $T_c=25^\circ\text{C}$ unless otherwise specified

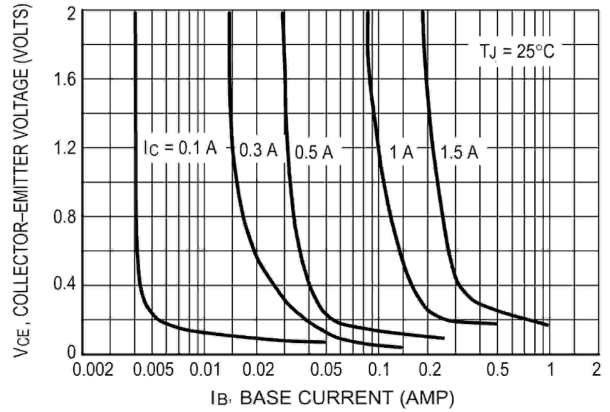
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	600		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	400		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB}=600\text{V}, I_E=0$		100	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=6\text{V}, I_C=0$		100	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=100\text{mA}$	8	60	
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_C=200\text{mA}$	9	40	
	$h_{FE(3)}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	6		
Collector-emitter saturation voltage	V_{CEsat}	$I_C=200\text{mA}, I_B=40\text{mA}$		0.8	V
Base-emitter saturation voltage	V_{BEsat}	$I_C=200\text{mA}, I_B=40\text{mA}$		1.1	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=100\text{mA}$ $f=1\text{MHz}$	5		MHz
Fall time	t_f	$I_C=1\text{A}, I_{B1}=-I_{B2}=0.2\text{A}$,		0.5	μs
Storage time	t_s	$V_{CC}=100\text{V}$		2.5	μs



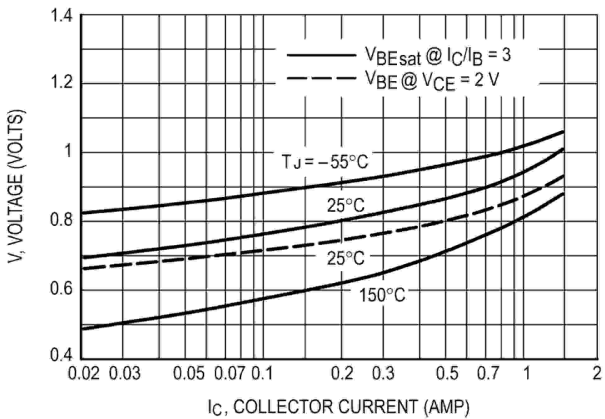
RATINGS AND CHARACTERISTIC CURVES E13002



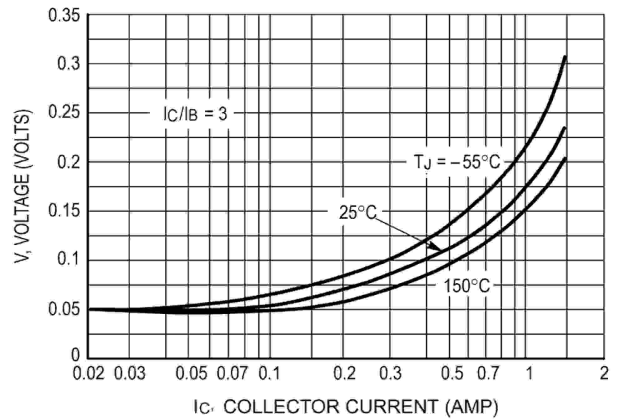
DC Current Gain



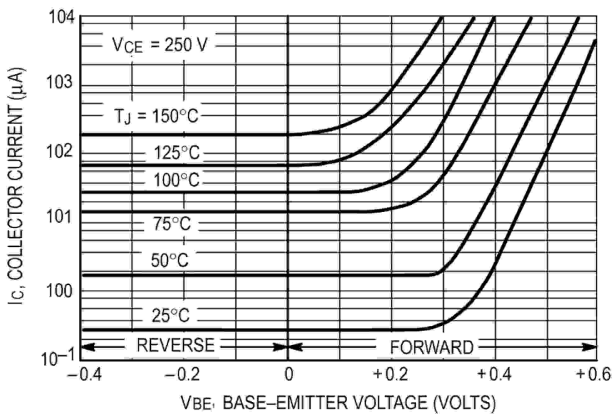
Collector Saturation Region



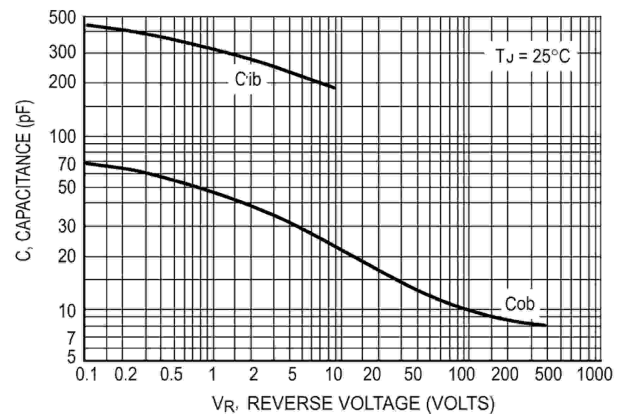
Base-Emitter Voltage



Collector-Emitter Saturation Region



Collector Cutoff Region



Capacitance