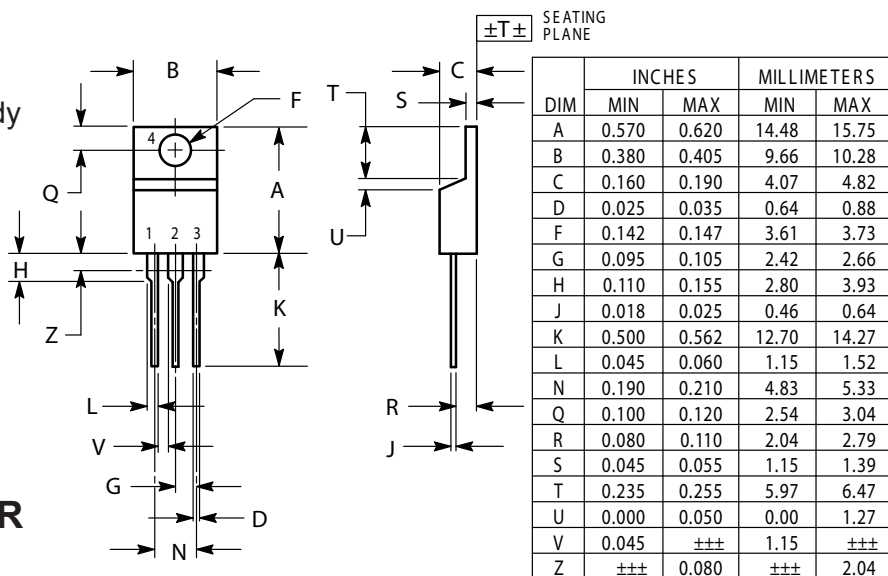


POWER TRANSISTOR E13005

SWITCHING REGULATOR APPLICATION

- High speed switching
- Suitable for switching regulator and motor control
- Case : TO-220 molded plastic body

TO-220



NPN SILICON TRANSISTOR

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

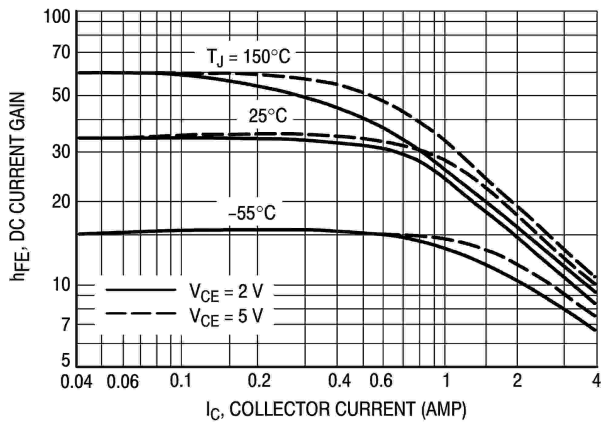
Parameter	Symbol	Value	UNIT
Power dissipation	P_c	75	W
Collector current (DC)	I_c	4.0	A
Collector current (Pulse)	I_{cP}	8.0	A
Operating and storage junction temperature range	T_J, T_{STG}	-55 °C to +150 °C	°C

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

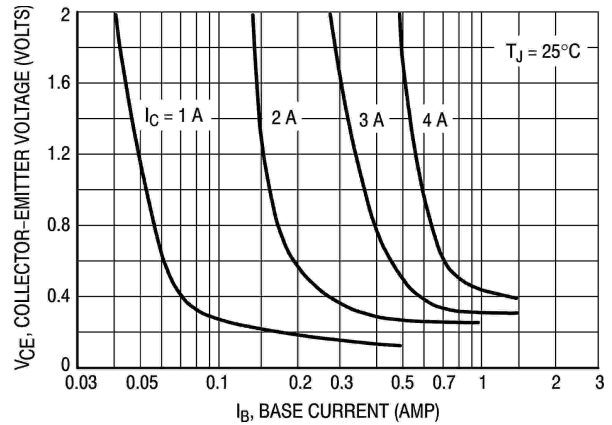
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_c=1\text{mA}, I_E=0$	700		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_c=10\text{mA}, I_B=0$	400		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\text{mA}, I_C=0$	9		V
Collector cut-off current	I_{CBO}	$V_{CB}=600\text{V}, I_E=0$		1	mA
Collector cut-off current	I_{CEO}	$V_{CE}=300\text{V}, I_B=0$		100	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=9\text{V}, I_C=0$		1	mA
DC current gain	h_{FE}	$V_{CE}=5\text{V}, I_c=1\text{A}$	10	40	
Collector-emitter saturation voltage	V_{CEsat}	$I_c=2\text{A}, I_B=500\text{mA}$		0.6	V
Base-emitter saturation voltage	V_{BEsat}	$I_c=2\text{A}, I_B=500\text{mA}$		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	$I_c=2\text{A}, I_{B1}=-I_{B2}=0.4\text{mA},$		0.9	μs
Storage time	t_s	$V_{CC}=125\text{V}$		4	μs



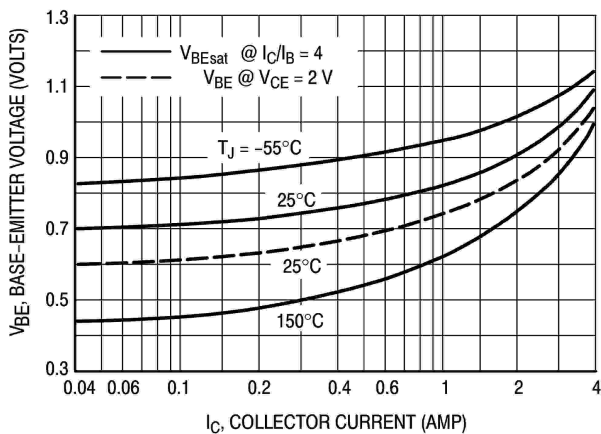
RATINGS AND CHARACTERISTIC CURVES E13005



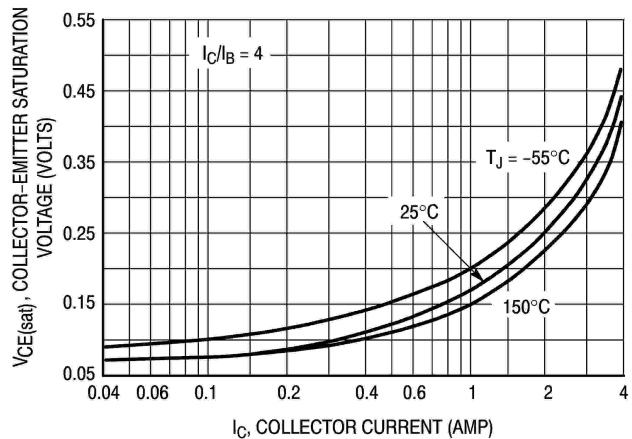
DC Current Gain



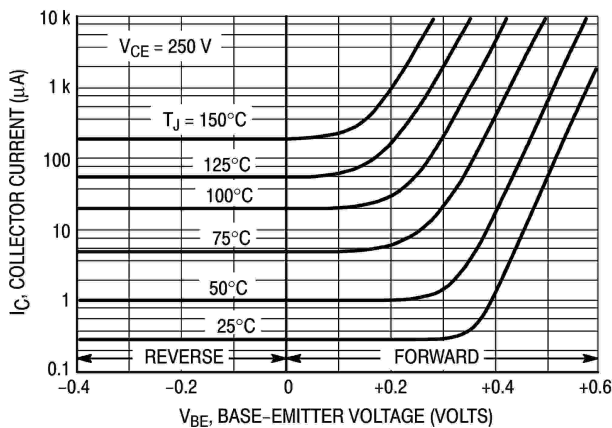
Collector Saturation Region



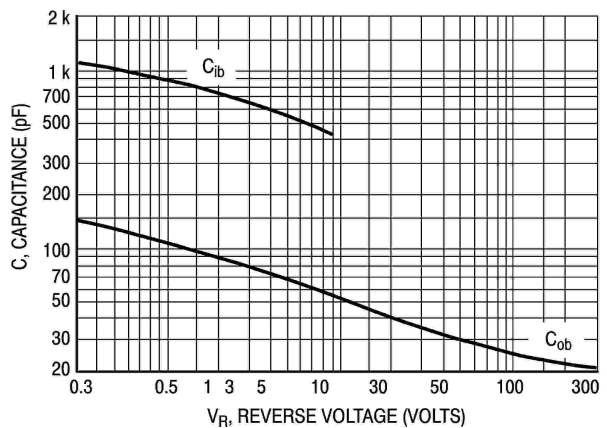
Base-Emitter Voltage



Collector-Emitter Saturation Voltage



Collector Cutoff Region



Capacitance