Hometaxial-Base, Medium-Power Silicon N-P-N Power Transistor   **40250**

Rugged Device for

Intermediate-Power

Applications in Industrial and

Commercial Equipment

Applications:

■ **Power switching circuits**
■ **Series- and Shunt- regulator**
  driver and output stages
■ **High-fidelity amplifiers**
■ **Solenoid drivers**

The 40250 is a hometaxial-base silicon n-p-n transistor intended for a wide variety of medium- to high-power applications. The 40250 is supplied in the JEDEC TO-66 hermetic package.

Terminal Designations

bottom view
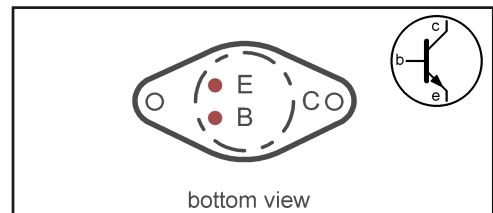
JEDEC TO-66

MAXIMUM RATINGS, *Absolute-Maximum Values:*

V_{CBO}	**50**	V
$V_{CEV}^{(sus)}$ (V_{EB} = -1.5Volts)	**50**	V
$V_{CEO}^{(sus)}$	**40**	V
V_{EBO}	**5**	V
I_C	**4**	A
I_B	**2**	A
P_T At case temperature up to 25°C P_T At temperatures above 25°C	**29** **derate linearly to 200°C**	W
T_{stg} T_J	**-65 to +200**	°C
T_L At distance ≥ 1/32 in. (0.8mm) from seating plane for 10s max.	**235**	°C

Hometaxial-Base Silicon N-P-N Power Transistor 40250

Electrical Characteristics, *at Case Temp. (T_C) = 25°C unless otherwise specified*

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS		UNITS
		VOLTAGE V dc		CURRENT A dc				
		V_{CE}	V_{BE}	I_C	I_B	Min	Max	
Collector Cutoff Current with base open	I_{CBO}	V_{CB} = 30		I_E = 0		-	1	mA
At T_C = 150°C	I_{CBO}	V_{CB} = 30		I_E = 0		-	5	
Emitter Cutoff Current	I_{EBO}		-5		0	-	5	mA
Collector-to-Base Breakdown Voltage	$V_{(BR)CB0}$			0.05		50	-	V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEV}$		-1.5	0.05		50	-	V
Collector-to-Emitter Sustaining Voltage with base open	$V_{CEO}^{(sus)}$			0.1[a]	0	40	-	V
Emitter-to-Base Breakdown Voltage I_E = 0.005A	$V_{(BR)EBO)}$					5	-	V
DC Forward Current Transfer Ratio	h_{FE}	4		1.5[a]		25	100	
Collector-to-Emitter Saturation Voltage	$V_{CE}^{(sat)}$			1.5[a]	0.15[a]	-	1.5	V
Base-to-Emitter Voltage	V_{BE}	4		1.5		-	2.2	V
Common Emitter Small Signal Short-Circuit, Forward Current Transfer Ratio Cutoff Requency	f_{hfe}	4		0.1		-	-	MHz
Termal Resistance Junction to Case	$R_{\theta JC}$					6 (max)		°C/W
Junction to Ambient	$R_{\theta JA}$					-		

Note a: Pulsed, Pulse duration = 300μs, duty facor = 1.8%

Terms and Symbols

C_{ob}	- common-base output capacitance
f_T	- gain-bandwidth product (unity-gain frequency for devices in which gain roll-off has a -1 slope)
$f_{\alpha b}$	- base (alpha) cutoff frequency
h_{FE}	- dc forward-current transfer ratio
h_{fe}	- common-emitter, small-signal, short-circuit, forward-current transfer ratio
$\lvert h_{fe} \rvert$	- magnitude of common-emitter, small-signal, short-circuit, forward-current transfer ratio
I_C	- continous collector current
I_{CM}	- peak collector current
I_{CER}	- collector-cutoff current with specified resistance between base and emitter
I_{CEX}	- collector-cutoff current with specified circuit between base and emitter
I_B	- continous base current
I_{EBO}	- emitter-cutoff current, collector open
I_{CBO}	- collector-cutoff current, emitter open
$I_{S/b}$	- forward-bias, second break-down collector current
P_T	- transistor dissipation at specified temperature
$r_{CE}{}^{(sat)}$	- dc collector-to-emitter saturation resistance
R_{BE}	- external base-to-emitter resistance
$R_{\theta JC}$	- thermal resistance, junction-to-case
$R_{\theta JFA}$	- thermal resistance, junction-to-free air
t_d	- delay time
t_r	- rise time
t_f	- fall time
T_C	- case temperature
T_{stg}	- storage temperature
T_J	- operating (junction) temperature
T_L	- lead temperature during soldering
V_{CBO}	- collector-to-base voltage, emitter open
V_{CEO}	- collector-to-emitter voltage, base open
$V_{CEO}{}^{(sus)}$	- collector-to-emitter sustaining voltage, base open
$V_{CER}{}^{(sus)}$	- collector-to-emitter sustaining voltage with specified resistance between base and emitter
V_{EBO}	- emitter-to-base voltage, collector open
V_{BE}	- base-to-emitter voltage
$V_{CE}{}^{sat}$	- collector-to-emitter saturation voltage
T	- torque
θ	- conduction angle