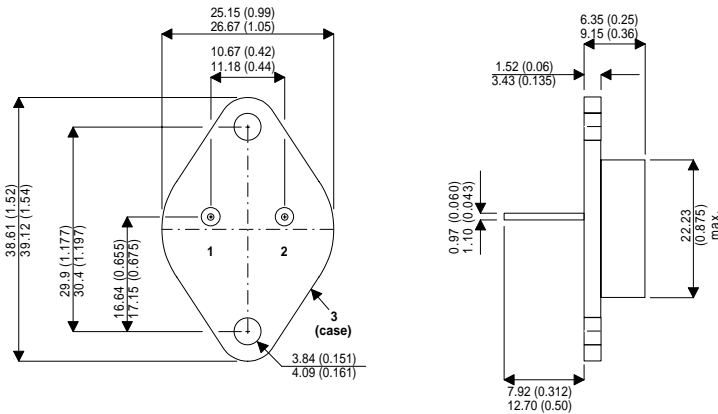


SILICON PLANAR EPITAXIAL NPN POWER SWITCHING TRANSISTOR

MECHANICAL DATA

Dimensions in mm (inches)



FEATURES

- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- JAN LEVEL SCREENING OPTIONS

APPLICATIONS:

The BUY24 is a silicon planar epitaxial NPN transistor in a TO-3 (TO-204AA) metal case. It is suitable for switching applications up to 5A.

TO-3 PACKAGE (TO-204AA)

Underside View

PAD 1 – Base PAD 2 – Emitter PAD 3 – Collector

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{CBO}	Collector - Base Voltage ($I_E = 0$)	120V
V_{CEO}	Collector - Emitter Voltage ($I_B = 0$)	60V
V_{EBO}	Emitter - Base Voltage ($I_C = 0$)	6V
I_C	Collector Current	5A
P_{tot}	Total Power Dissipation at $T_{case} < 75^{\circ}C$	15W
R_{JC}	Thermal Resistance Junction To Case	$5^{\circ}C/W$
T_{STG}	Storage Temperature	-55 to $+150^{\circ}C$
T_J	Junction Temperature	$150^{\circ}C$

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO} Collector-Cutoff Current	$V_{\text{CB}}=60\text{V}$ $I_{\text{E}}=0$			10	μA
	$T_{\text{C}}=125^{\circ}\text{C}$			1	mA
$V_{(\text{BR})\text{CEO}^*}$ Collector-Emitter Breakdown Voltage	$I_{\text{C}}=50\text{mA}$ $I_{\text{B}}=0$	60			V
$V_{(\text{BR})\text{CBO}^*}$ Collector-Base Breakdown Voltage	$I_{\text{C}}=1\text{mA}$ $I_{\text{E}}=0$	120			
$V_{(\text{BR})\text{EBO}^*}$ Emitter-Base Breakdown Voltage	$I_{\text{E}}=1\text{mA}$ $I_{\text{C}}=0$	6			
$V_{\text{CE(sat)}^*}$ Collector-Emitter Saturation Voltage	$I_{\text{C}}=2\text{A}$ $I_{\text{B}}=0.2\text{A}$		0.15	0.6	
	$I_{\text{C}}=5\text{A}$ $I_{\text{B}}=0.5\text{A}$		0.4	1.0	
$V_{\text{BE(sat)}^*}$ Base-Emitter Saturation Voltage	$I_{\text{C}}=2\text{A}$ $I_{\text{B}}=0.2\text{A}$		0.9	1.2	
	$I_{\text{C}}=5\text{A}$ $I_{\text{B}}=0.5\text{A}$		1.1	1.3	
h_{FE}^* DC Current Gain	$I_{\text{C}}=0.5\text{A}$ $V_{\text{CE}}=2\text{V}$	45	100		—
	$I_{\text{C}}=2\text{A}$ $V_{\text{CE}}=2\text{V}$	40	85		
	$I_{\text{C}}=5\text{A}$ $V_{\text{CE}}=2\text{V}$		40		
f_{T} Transition Frequency	$I_{\text{C}}=0.5\text{A}$ $V_{\text{CE}}=5\text{V}$		100		MHz
C_{CBO} Collector-Base Capacitance	$I_{\text{E}}=0$ $V_{\text{CB}}=10\text{V}$		35	80	pF
t_{on} Turn-on Time	$I_{\text{C}}=5\text{A}$ $I_{\text{B1}}=0.5\text{A}$		150	350	ns
t_{off} Turn-off Time	$I_{\text{C}}=5\text{A}$ $I_{\text{B1}}=I_{\text{B2}}=0.5\text{A}$		350	650	
h_{fe} Small Signal Current Gain	$I_{\text{C}}=0.5\text{A}$ $V_{\text{CE}}=5\text{V}$ $f=20\text{MHz}$	2.5	5		—

* Pulsed: Pulse Duration = 300 μs , duty cycle = 1.0%