T-33-13

MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

BU500

HORIZONTAL DEFLECTION TRANSISTOR

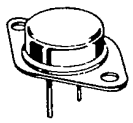
. . . specifically designed for use in large screen color deflection circuits

- V_{CEX} = 1500 V;
  $V_{CEO(sus)}$ = 700 V (min.)
- Low saturation:
  $V_{CE(sat)}$ = 1 V (max.) @ Ic = 4.5 Adc

6 AMPERES

NPN SILICON POWER METAL TRANSISTOR

1500 VOLTS
75 WATTS



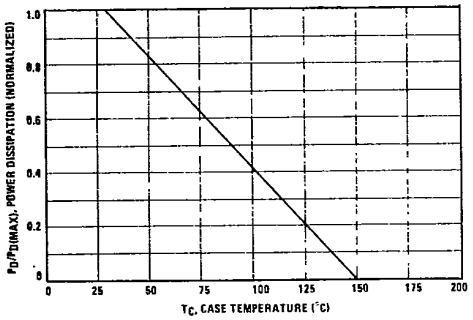
MAXIMUM RATINGS

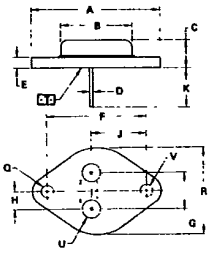
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO(sus)}$	700	Vdc
Collector-Base Voltage	V_{CBO}	1500	Vdc
Emitter-Base Voltage	V_{EBO}	5	Vdc
Collector-Emitter Voltage (V_{BE} = −2.0 V)	V_{CEX}	1500	Vdc
Collector-Current — continuous — peak (pw ≤ 300 μs)	I_C I_{CM}	6 16	Adc Apk
Base-Current continuous	I_B	4	Adc
Total Power Dissipation @ T_C = 25°C	P_D	75	Watts
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to 150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max.	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.66	°C/W

FIGURE 1 – POWER DERATING





NOTES
1 DIMENSIONS Q AND V ARE DATUMS
2 T IS SEATING PLANE AND DATUM
3 POSITIONAL TOLERANCE FOR MOUNTING HOLE Q
⌖ ⌀13 (0.005) M T V M
FOR LEADS
⌖ ⌀13 (0.005) M T V M Q M
4 DIMENSIONS AND TOLERANCES PER ANSI Y14.5, 1973

DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	–	39.37	–	1.550
B	–	21.08	–	0.830
C	6.35	7.62	0.250	0.300
D	0.97	1.09	0.038	0.043
E	–	3.43	–	0.135
F	30.15 BSC		1.187 BSC	
G	10.92 BSC		0.430 BSC	
H	5.46 BSC		0.215 BSC	
J	16.89 BSC		0.665 BSC	
K	11.18	12.19	0.440	0.480
Q	3.81	4.19	0.150	0.165
R	–	26.67	–	1.050
U	4.83	5.33	0.190	0.210
V	3.81	4.19	0.150	0.165

CASE 1-05 TO-3

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS (1)				
Collector-Emitter Sustaining Voltage (I_C = 500 mAdc, I_B = 0) L = 10 mH	$V_{CEO(sus)}$	700		Vdc
Collector Cutoff Current at Reverse Bias: (V_{CE} = 1000 V, I_E = 0) (V_{CE} = 1500 V, I_E = 0)	I_{CBO}		0.02 1.0	mAdc
Collector-Emitter Cutoff Current (V_{CE} = 1500 V, V_{BE} = -2 V)	I_{CEX}		1.0	mAdc
Emitter-Base Reverse Voltage (I_E = 100 mA)	V_{EBO}	5		V
Emitter Cutoff Current (V_{EB} = 4 V)	I_{EBO}		10	mAdc
ON CHARACTERISTICS (1)				
DC Current Gain (I_C = 4.5 Adc, V_{CE} = 5 V)	h_{FE}	3.0		–
Collector-Emitter Saturation Voltage (I_C = 4.5 Adc, I_B = 2 A)	$V_{CE(sat)}$		1.0	Vdc
Base-Emitter On Voltage (I_C = 4.5 Adc, V_{CE} = 2 A)	$V_{BE(on)}$		1.3	Vdc

SWITCHING CHARACTERISTICS (Resistive Load)

	(V_{CC} = 100 Vdc, I_C = 4.5 A, I_{B1} = 1.5 A, I_{B2} = 1.5 A)		–		μs
Storage Time		t_s	–	1.2	
Fall Time		t_f	–	1.0	

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2%

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