

MOTOROLA

SEMICONDUCTOR

TECHNICAL DATA

HORIZONTAL DEFLECTION TRANSISTOR

... specifically designed for use in deflection circuits.

- $V_{CEX} = 1500 \text{ V}$
- Glassivated Base-Collector Junction
- Safe Operating Area @ $50 \mu\text{s} = 20 \text{ A}$, 400 V

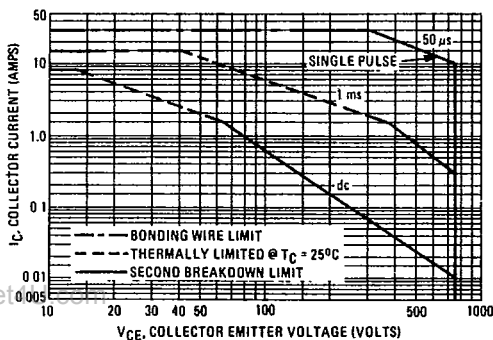
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEX}	1500	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current - Continuous	I_C	8.0	Adc
Base Current - Continuous	I_B	4.0	Adc
Emitter Current - Continuous	I_E	12	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	100 0.8	Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to + 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.25	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	T_L	275	$^\circ\text{C}$

FIGURE 1 - MAXIMUM FORWARD BIAS SAFE OPERATING AREA

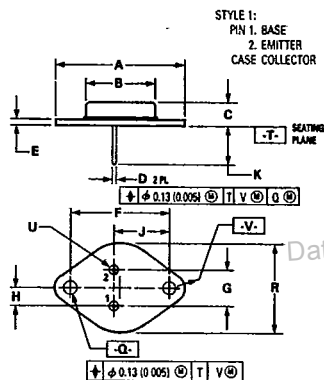
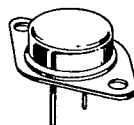


MJ12005

8 AMPERE

NPN SILICON
POWER TRANSISTOR

1500 VOLTS
100 WATTS



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH REFERENCED TO-204AA OUTLINE SHALL APPLY.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	6.35	8.25	0.250	0.325
D	0.97	1.09	0.038	0.043
E	1.40	1.77	0.055	0.070
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
L	2.94	4.19	0.151	0.165
M	—	25.67	—	1.010
N	4.64	6.33	0.183	0.250
P	3.84	4.19	0.151	0.165

CASE 1-06
TO-204AA
(TO-3)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage ($V_C = 50\text{ mAdc}$, $I_B = 0$)	$V_{CE(sus)}$	750	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 1500\text{ Vdc}$, $V_{BE} = 0$)	I_{CES}	—	—	0.25	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	—	0.1	mAdc
ON CHARACTERISTICS (1)					
Collector-Emitter Saturation Voltage ($I_C = 5.0\text{ Adc}$, $I_B = 1.0\text{ Adc}$)	$V_{CE(sat)}$	—	—	5.0	Vdc
Base Emitter Saturation Voltage ($I_C = 5.0\text{ Adc}$, $I_B = 1.0\text{ Adc}$)	$V_{BE(sat)}$	—	—	1.5	Vdc
Second Breakdown Collector Current with Base Forward Biased	$I_{S/b}$	—	—	See Figure 1	
SWITCHING CHARACTERISTICS					
Fall Time ($I_C = 5.0\text{ Adc}$, $I_{B1} = 1.0\text{ Adc}$, $L_B = 8.0\text{ }\mu\text{H}$)	t_f	—	0.4	1.0	μs

(1) Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle = 2%.

FIGURE 2 – DC CURRENT GAIN

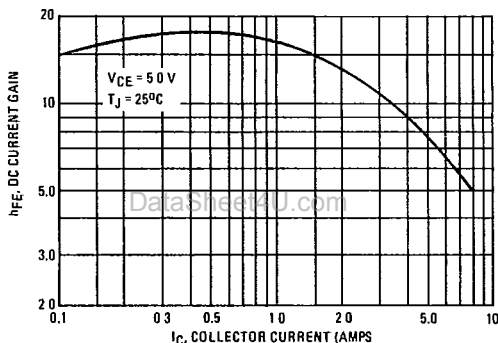
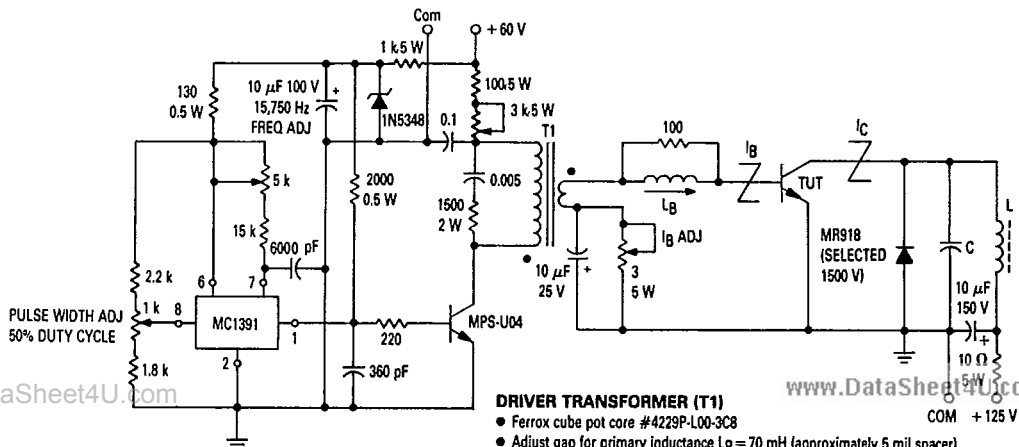


FIGURE 3 – SWITCHING TIMES TEST CIRCUIT



DRIVER TRANSFORMER (T1)

- Ferroxcube pot core #4229P-L00-3C8
- Adjust gap for primary inductance $L_p = 70\text{ mH}$ (approximately 5 mil spacer)
- Primary 230T #28 AWG (5 layers)
- Secondary 15T #22 AWG (1 layer)
- Secondary leakage inductance should be less than $3\text{ }\mu\text{H}$
- Use 3 mil mylar tape between each winding layer

I_C A	L mH	C μF
5.0	0.576	0.018

COM +125 V