

# MP2100A, MP2200A, MP2300A, MP2400A (GERMANIUM)

For Specifications, See MP2000A Data.

## MP3730 (GERMANIUM) MP3731

### PNP GERMANIUM POWER TRANSISTORS

PNP Germanium power transistors with the MP3730 designed primarily for medium-power, vertical deflection amplifier applications in television receivers and the MP3731 designed for horizontal amplifier applications.

- Low Collector Cutoff Current —  
 $I_{CES} = 5.0 \text{ mAdc (Max) @ } V_{CE} = 200 \text{ Vdc MP3730}$   
 $= 10 \text{ mAdc (Max) @ } V_{CE} = 320 \text{ Vdc MP3731}$
- Low Collector Emitter Saturation Voltage —  
 $V_{CE(sat)} = 0.5 \text{ Vdc (Max) @ } I_C = 50 \text{ mAdc MP3730}$   
 $= 0.5 \text{ Vdc (Max) @ } I_C = 6.0 \text{ Adc MP3731}$
- Low Base-Emitter Saturation Voltage —  
 $V_{BE(sat)} = 0.8 \text{ Vdc (Max) @ } I_C = 6.0 \text{ Adc MP3731}$

### \*MAXIMUM RATINGS

Rating	Symbol	MP3730	MP3731	Unit
Collector-Emitter Voltage	$V_{CES}$	200	320	Vdc
Collector-Base Voltage	$V_{CB}$	200	320	Vdc
Emitter-Base Voltage	$V_{EB}$	2.0		Vdc
Collector Current — Continuous	$I_C$	5.0	10	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	56 0.67		Watts W/ $^\circ\text{C}$
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +110		$^\circ\text{C}$

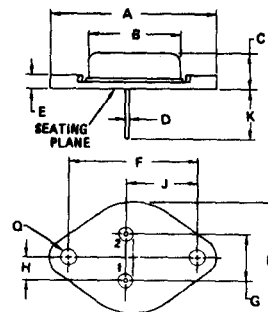
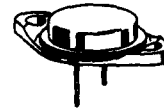
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$\theta_{JC}$	1.5	$^\circ\text{C/W}$

### 5 and 10 AMPERE POWER TRANSISTORS

### PNP GERMANIUM EPITAXIAL BASE

200-320 VOLTS  
56 WATTS



STYLE 1:  
PIN 1: BASE  
2: EMITTER  
CASE: COLLECTOR  
NOTE: 1. DIM "Q" IS DIA.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	38.37	—	1.550
B	—	22.23	—	0.875
C	6.35	11.43	0.250	0.450
D	0.97	1.00	0.038	0.043
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.87	11.18	0.420	0.440
H	5.21	5.72	0.205	0.225
J	16.84	17.15	0.665	0.675
K	11.18	12.19	0.440	0.480
L	3.84	4.06	0.151	0.161
M	—	26.67	—	1.050

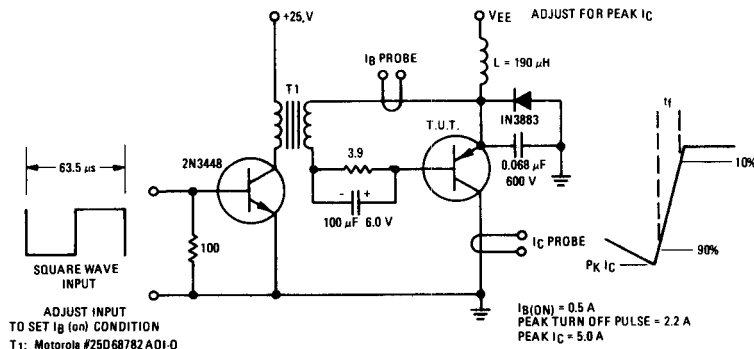
CASE 11-03

# MP3730, MP3731 (continued)

## ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector Cutoff Current ( $V_{CE} = 200\text{ Vdc}$ , $V_{BE} = 0$ ) ( $V_{CE} = 320\text{ Vdc}$ , $V_{BE} = 0$ )	$I_{CES}$	—	5.0 10	mAdc
Collector Cutoff Current ( $V_{CB} = 10\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	0.4	mAdc
Emitter Cutoff Current ( $V_{BE} = 0.5\text{ Vdc}$ , $I_C = 0$ ) ( $V_{BE} = 2.0\text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	—	50 50	mAdc
<b>ON CHARACTERISTICS</b>				
DC Current Gain ( $I_C = 50\text{ mAdc}$ , $V_{CE} = 4.0\text{ Vdc}$ ) ( $I_C = 2.25\text{ Adc}$ , $V_{CE} = 4.0\text{ Vdc}$ ) ( $I_C = 6.0\text{ Adc}$ , $V_{CE} = 3.0\text{ Vdc}$ )	$h_{FE}$	10 15 15	200 — —	—
Collector-Emitter Saturation Voltage ( $I_C = 50\text{ mAdc}$ , $I_B = 5.0\text{ mAdc}$ ) ( $I_C = 2.25\text{ Adc}$ , $I_B = 150\text{ mAdc}$ ) ( $I_C = 6.0\text{ Adc}$ , $I_B = 400\text{ mAdc}$ )	$V_{CE(sat)}$	— — —	0.5 0.75 0.5	Vdc
Base-Emitter Saturation Voltage ( $I_C = 6.0\text{ Adc}$ , $I_B = 400\text{ mAdc}$ )	$V_{BE(sat)}$	—	0.8	Vdc
Base-Emitter On Voltage ( $I_C = 0.5\text{ mAdc}$ , $V_{CE} = 4.0\text{ Vdc}$ )	$V_{BE(on)}$	—	0.6	Vdc
<b>DYNAMIC CHARACTERISTICS</b>				
Current-Gain-Bandwidth Product ( $I_C = 0.5\text{ Adc}$ , $V_{CE} = 5.0\text{ Vdc}$ )	$f_T$	1.0	—	MHz
<b>SWITCHING CHARACTERISTICS (Figure 1)</b>				
Fall Time — MP3731 ( $V_{CE} = 300\text{ V (Peak)}$ , $I_C = 5.0\text{ A (Peak)}$ ) $I_{B1} = 0.5\text{ A (Peak)}$ , $I_{B2} = 2.2\text{ A (Peak)}$	$t_f$	—	2.0	$\mu\text{s}$

FIGURE 1 — SWITCHING TIME TEST CIRCUIT



NOTE: If transformer is not readily available, it may be simulated as follows:  
Material:  $\frac{1}{4}$  inch thick EI stack-laminated soft iron. Center leg  $\frac{1}{4}$  inch by  $\frac{1}{4}$  inch. (No air gap.) Primary: 260 turns No. 30 (AWG)  
Secondary: 22 turns No. 24 (AWG)