

N-P-N epitaxial planar transistor intended for use in class A, B and C operated mobile, industrial and military transmitters, with a supply voltage of 28 V. The transistor is resistance-stabilized, and tested under severe load mismatch conditions. The transistor is housed in a hermetically sealed TO-60 package, with the emitter pin connected to case.

QUICK REFERENCE DATA

| Operation | Class | f (MHz) | P _L (W) | G _p (dB) | d ₃ /d ₅ (dB) | I _{czs} (mA) |
|-----------|-------|----------|--------------------|---------------------|-------------------------------------|-----------------------|
| C.W. | B | 70 | 40 | > 13 | - | - |
| S.S.B | A – B | 1.6 – 28 | 40 (PEP) | typ. 16 | typ. -33 | 50 |

| | | | | | |
|--|--------------------|----------------------|------|-----|------|
| TO-60 The emitter is connected to the case The top pins should not be bent | | | | | |
| <u>Voltages</u> | | | | | |
| Collector-base voltage (open emitter) peak value | V _{CBOM} | max. | 65 | V | |
| Collector-emitter voltage (open base) | V _{CEO} | max. | 38 | V | |
| Emitter-base voltage (open collector) | V _{EBO} | max. | 4 | V | |
| <u>Currents</u> | | | | | |
| Collector current (average) | I _{C(AV)} | max. | 6 | A | |
| Collector current (peak value) f>1 MHz | I _{CM} | max. | 12 | A | |
| <u>Temperatures</u> | | | | | |
| Storage temperature | T _{stg} | -65 to +200 | | °C | |
| Operating junction temperature | T _j | max. | 200 | °C | |
| THERMAL RESISTANCE | | | | | |
| Thermal resistance from junction to mounting base V _C =25V; I _C =2.4 A; P _{tot} = 60W; | | | | | |
| heat sink temperature = 25°C | 587BLY | R th j-mb | max. | 2.5 | °C/W |
| | 587BLY/A | | max. | 3.1 | °C/W |
| Thermal resistance from mounting base to heatsink | | | | | |
| | | | | 0.6 | °C/W |



| | | | | | |
|--|---------------------------|--------------------|----------|-------|----|
| <u>Breakdown voltages</u> | | | | | |
| Collector-base voltage open emitter; $I_C = 100\text{mA}$ | $V_{(BR)CBO}$ | > | 65 | V | |
| Collector-emitter sustaining voltage open base; $I_C = 200\text{ mA}$ | $V_{(BR)CEO\text{sust.}}$ | > | 38 | V | 1* |
| Emitter-base voltage open collector; $I_E = 10\text{ mA}$ | $V_{(BR)EBO}$ | > | 4 | V | |
| Collector-emitter sustaining voltage reverse base; $-V_{BE} = 1.5\text{ V}$; $I_C = 200\text{ mA}$ | $V_{(BR)CE\text{sust.}}$ | > | 65 | V | 1* |
| <u>Collector-base cut-off current</u> $V_{CB} = 60\text{V}$ | I_{CBO} | < | 10 | mA | |
| <u>Collector-emitter cut-off current</u> $V_{CE} = 30\text{V}$ | I_{CEO} | < | 5 | mA | |
| <u>Collector-emitter cut-off current</u> $V_{CE} = 60\text{V}$; $-V_{BE} = 1.5\text{ V}$ | I_{CEX} | < | 10 | mA | |
| <u>Transient energy</u> Open base; $L = 25\text{mH}$; $f = 50\text{Hz}$ | E | > | 8 | mWs | |
| Reverse base; $-V_{BE} = 1.5\text{V}$; $R_{BE} = 33\Omega$ | E | > | 8 | mWs | |
| <u>D.C current gain</u> $I_C = 5\text{A}$; $V_{CE} = 5\text{V}$ | h_{FE} | > | 20 | | |
| $I_C = 1\text{A}$; $V_{CE} = 5\text{V}$ | Letter code | Colour | | | |
| | A | Black | h_{FE} | 20-30 | |
| | B | Brown | h_{FE} | 30-40 | |
| | C | White | h_{FE} | 40-50 | |
| <u>Saturation voltage</u> $I_C = 5\text{A}$; $I_B = 0.5\text{A}$ | 587BLY | $V_{CE\text{sat}}$ | < | 2.0 | V |
| | 587BLY/A | | < | 2.5 | V |
| <i>1* Pulsed through an inductor; L=25 mH; duty factor 50%</i> | | | | | |
| <u>Transition frequency</u> $V_{CE} = 20\text{V}$; $I_C = 6\text{A}$ | f_T | typ. | 450 | MHz | |
| <u>Collector capacitance at f = 1 MHz</u> $I_E = I_e = 0$; $V_{CB} = 30\text{V}$ | C_{ob} | < | 85 | pF | |
| <u>Feedback capacitance</u> $I_C = 100\text{ mA}$; $V_{CE} = 30\text{V}$ | C_{re} | typ. | 47 | pF | |
| <u>Collector-stud capacitance</u> | C_{cs} | typ. | 2 | pF | |

CAUTION

This device incorporates Beryllium Oxide, the dust of which is toxic. The device is entirely safe provided that it is not dismantled. Care should be taken to ensure that all those who may handle, use or dispose of this device are aware of its nature and of the necessary safety precautions. In particular, it should never be thrown out with general industrial or domestic waste.

DISPOSAL SERVICE

Devices requiring disposal may be returned to American Microsemiconductor, Inc. They must be separately and securely packed and clearly identified. If any are damaged or broken they MUST NOT be sent through the post. In this case, advice is available from:

American Microsemiconductor, Inc.
 133 Kings Road, Madison, New Jersey, 07940 USA

| Operation | V _{CE} (V) | Class | f (MHz) | P _L (W) | G _P (dB) | d ₃ /d ₅ (dB) | I _{czs} (mA) | η _c (%) |
|---------------------|------------------------|-------|------------|-----------------------|------------------------|--|--------------------------|-----------------------|
| C.W. | 30 | B | 70 | 40 | ≥13 | - | - | ≥65 |
| S.S.B. | 28 | A-B | 1.6-28 | 40 (PEP) | typ. 16 | typ. -33 | 50 | ≥35 |
| S.S.B. <i>1*</i> | 30 | A-B | 30 | 25 (PEP) | - | min. -30 | - | - |

The transistor is designed to withstand a mismatch with VSWR 50:1, any phase, operating at 40 watts load power at f = 70 MHz, V_{CE} = 30V and T_h = 25°C in the recommended test circuit.

1 Batch sample only*