# PA45DIE

APEX MICROTECHNOLOGY

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## ABSOLUTE MAXIMUM RATINGS

| | |
|---|---|
| SUPPLY VOLTAGE, $+V_S$ to $-V_S$ | 150V |
| OUTPUT CURRENT, continuous | 5A |
| INPUT VOLTAGE, differential | ±16V |
| INPUT VOLTAGE, common mode | $\pm V_S$ |
| TEMPERATURE, junction | 150°C |

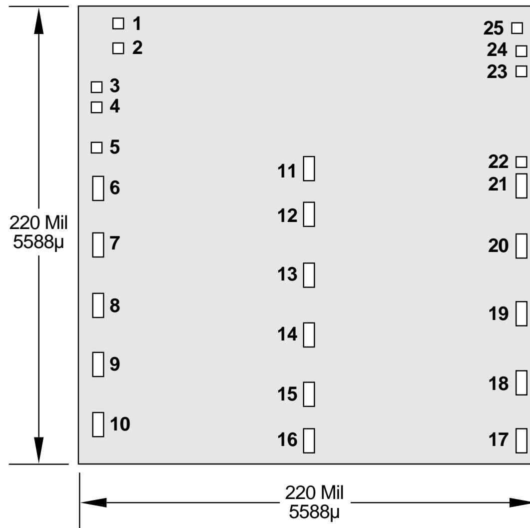
**NOTE:** Because of wafer probing test limitations, full power tests are not possible. Refer to parent product data sheet PA45 for typical AC, DC and power performance specifications.

## DC WAFER PROBED SPECIFICATIONS

| PARAMETER[1] | TEST CONDITIONS | MIN | MAX | UNITS |
|---|---|---|---|---|
| OFFSET VOLTAGE, initial | $V_S$ = ±20V to ±75 V | | 25 | mV |
| OFFSET VOLTAGE, vs. supply | $V_S$ = ±20V | | 25 | µV/V |
| BIAS CURRENT, initial | $V_S$ = ±20V | | 1 | nA |
| OFFSET CURRENT, initial | $V_S$ = ±20V | | 1 | nA |
| SUPPLY CURRENT, quiescent | $V_S$ = ±20V | | 26 | mA |
| COMMON MODE REJECTION | $V_{CM}$ = ±45V, $V_S$ = ±75V | 84 | | dB |
| VOLTAGE SWING, positive | $V_S$ = ±50V, $I_O$ = 40mA | 40 | | V |
| VOLTAGE SWING, negative | $V_S$ = ±50V, $I_O$ = –40mA | –40 | | V |
| ALARM, sink current | $V_S$ = ±20V to ±75 V | 90 | | µA |
| ALARM, leakage | $V_S$ = ±20V to ±75 V | | 1 | µA |

**NOTES:** 1. Current limit, $I_Q$ pin, and shutdown verified as operational.

## DIE LAYOUT




Thickness: 11 Mil (280µ)
Backside: Silicon (no back metal)
Small Bond pads: 5 Mil sq (127µ) Al
Large Bond pads: 5 x 11 Mil (127µ x 280µ) Al

**NOTE:** Tie backside to $-V_S$ through die attach medium. Recommended die attach material is either conductive epoxy or silver-glass. Lowest thermal resistance will be obtained with silver-glass.

Recommended wire is 2 mil aluminum. All large bond pads must be used to avoid excessive current density in the die metalization.

| Pad | Function | Pad | Function |
|---|---|---|---|
| 1 | – Input | 11-16 | Output Drive |
| 2 | + Input | 17-21 | $+V_S$ |
| 3* | Alarm | 22* | $I_Q$ |
| 4* | Shutdown | 23 | Compensation |
| 5 | NC | 24 | Compensation |
| 6-10 | $-V_S$ | 25 | Current Limit Sense |

* Pad 3 (Alarm) is tied to a switched current source. When an over-temperature condition exits the current source turns on and sinks 90µA to $-V_S$. Pad 4 (Shutdown) will shut off the output stage when at least 90µA is pulled from pad 4 to any voltage at least 3 volts less positive than $+V_S$ (ground, for example). When pad 3 is tied to pad 4 an over-temperature condition will shut off the output stage until power is cycled and the fault is removed. Normally pad 22 ($I_Q$) is left open. When pad 22 is tied to pad 23 the quiescent current in the output stage is disabled. The result is lower quiescent but class C biasing of the output stage.

**CAUTION**

PA45DIE is a MOSFET amplifier. ESD handling procedures must be observed.

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