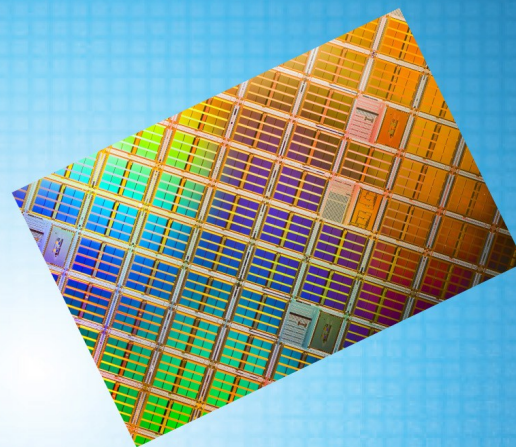




SEMICOA

Die Catalog

ES COMPONENTS
108 PRATTS JUNCTION
ROAD STERLING, MA 01564
PHONE: (978) 422-7641
FAX: (978) 422-0011
www.escomponents.com



SEMICOA

SEMICOA offers transistor and MOSFET die for high reliability military and space applications. Our transistor die is MIL-PRF-19500 JANHC and JANKC certified. Our MOSFET die is built to JANHC and JANKC equivalents to meet your needs.

Transistor Metallization: Front: Al: 27±/-3 kA Back: Au (alloyed): 6.5 kA

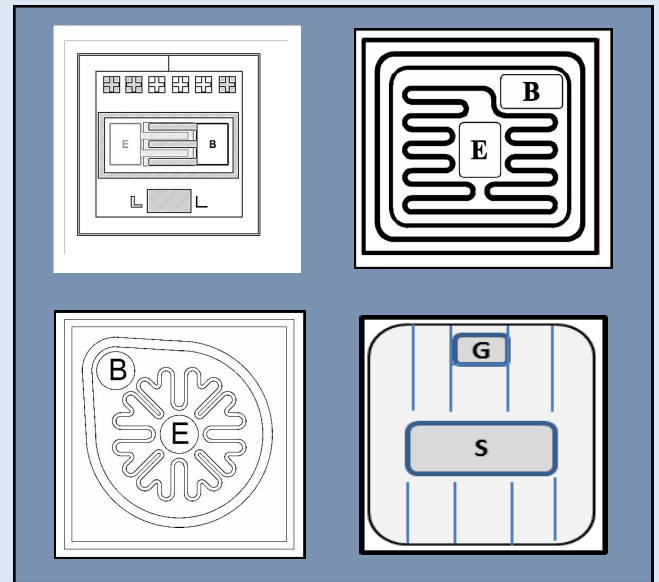
MOSFET Metallization: Front: AlCu: 28±/-2.8 kA Back: Ti: 1 kA; Ni: 2 kA; Ag: 6 kA

For any questions or more information please contact :



ES Components

Sales: 978.422-7641
Applications: 480.266.9737
Curt Olsen



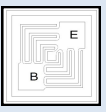
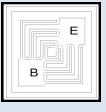
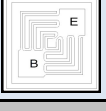
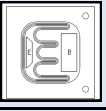
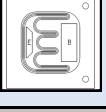
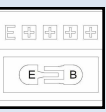
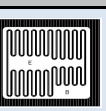
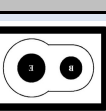
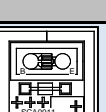
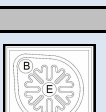
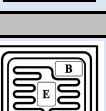
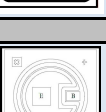
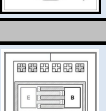
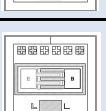
TRANSISTOR DIE

SPACE APPLICATIONS

| DEVICE | DIAGRAM | CERTIFIED | DIE SIZE | THICKNESS | BASE PAD SIZE | EMITTER PAD SIZE | SLASH SHEET |
|---------|---------|----------------------------------|---|--|--|---|-------------|
| 2N2222A | | JANKCCR2N2222A | 0.20 x 0.20 inch (0.508 mm x 0.508 mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | 255 |
| 2N2907A | | JANKCDR2N2907A JANKCDF2N2907A | 0.20 x 0.20 inch (0.508 mm x 0.508 mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | 291 |
| 2N2906A | | JANKCDR2N2906A JANKCDF2N2906A | 0.20 x 0.20 inch (0.508 mm x 0.508 mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | 291 |
| 2N3700 | | JANKCAR2N3700 | .030 X .030 inch (0.762mm x 0.762mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .004 X .010 inch (.1016mm x 0.254 mm) | .0023 X .007 inch (0.05842 mm x 0.1778 mm) | 391 |
| 2N3019 | | JANKCAR2N3019 | .030 X .030 inch (0.762mm x 0.762 mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .004 X .010 inch (.1016mm x 0.254 mm) | .0023 X .007 inch (0.05842mm x 0.1778 mm) | 391 |
| 2N918 | | JANKCAR2N918 JANKCAF2N918 | .016 X .016 inch (0.41mm x 0.41mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .0027 X .0027 inch (0.069mm x 0.069 mm) | .0027 X .0027 inch (0.069 mm x 0.069 mm) | 301 |
| 2N2369A | | JANKCBR2N2369A JANKCBF2N2369A | 0.16 x 0.16 inch (0.41mm x 0.41 mm) | .008 ± .0016 inch (0.2032mm ± 0.04064 mm) | .0036 x .0028 inch (.0901 mm x .07112 mm) | .0036 x .0028 inch (.091 mm x .07112 mm) | 317 |
| 2N2857 | | JANKCAR2N2857 JANKCAF2N2857 | .016 X .016 inch (0.41mm x 0.41 mm) | .008 ± .0016 inch (0.2032mm ± 0.04064mm) | .0023 X .0023 inch (0.058mm x 0.058 mm) | .0023 X .0023 inch (0.058 mm x 0.058 mm) | 343 |
| 2N4033 | | JANKCAR2N4033 | .030 X .030 inch (0.762mm x 0.762mm) | .008 ± .0016 inch (0.2032mm ± 0.04064mm) | .005 inch Diameter (.127mm Diameter) | .005 inch Diameter (.126 mm Diameter) | 512 |

Additional devices available upon request.

TRANSISTOR DIE NON-SPACE APPLICATIONS

| DEVICE | DIAGRAM | CERTIFIED | DIE SIZE | THICKNESS | BASE PAD SIZE | EMITTER PAD SIZE | SLASH SHEET |
|---------|---|--------------------------------|---|--|--|---|-------------|
| 2N2222A |  | JANHCC2N2222A JANKCC2N2222A | .020 x .020 inch (0.508 mm x 0.508 mm) | .008 ± .0016 inch (0.2032 mm ± 0.04064 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | 255 |
| 2N2907A |  | JANHCD2N2907A JANKCD2N2907A | .020 x .020 inch (0.508 mm x 0.508 mm) | .008 ± .0016 inch (0.2032 mm ± 0.04064 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | 291 |
| 2N2906A |  | JANHCD2N2906 JANKCD2N2906A | .020 x .020 inch (0.508 mm x 0.508 mm) | .008 ± .0016 inch (0.2032 mm ± 0.04064 mm) | .004 x .004 inch (0.1016mm x 0.1016 mm) | .004 x .004 inch (0.1016 mm x 0.1016 mm) | 291 |
| 2N3700 |  | JANHCA2N3700 JANKCA2N3700 | .030 X .030 inch (0.762 mm x 0.762 mm) | .008 ± .0016 inch (0.2032 mm ± 0.04064 mm) | .004 X 0.010 inch (.1016 mm x 0.254 mm) | .0023 X .007 inch (0.05842 mm x 0.1778 mm) | 391 |
| 2N3019 |  | JANHCA2N3019 JANKCA2N3019 | .030 X .030 inch (0.762 mm x 0.762 mm) | .008 ± .0016 inch (0.2032 mm ± 0.04064 mm) | .004 X 0.010 inch (.1016 mm x 0.254 mm) | .0023 X .007 inch (0.05842 mm x 0.1778 mm) | 391 |
| 2N918 |  | JANHCA2N918 JANKCA2N918 | .016 X .016 inch (0.406 mm x 0.406 mm) | .008 ± .0016 inch (0.2032 mm ± 0.4064 mm) | .0027 X .0027 inch (0.069 mm x 0.069 mm) | .0027 X .0027 inch (0.069 mm x 0.069 mm) | 301 |
| 2N6193 |  | JANHCB2N6193 JANKCB2N6193 | .098 x .098 inch (2.49 mm x 2.49 mm) | .006 ± 0.10 inch (0.15 mm ± 0.25 mm) | .0014 x 0.030 inch (.036 mm x .076 mm) | .0014 x 0.030 inch (.036 mm x .076 mm) | 561 |
| 2N2484 |  | JANHCA2N2484 JANKCA2N2484 | .015 X .019 inch (0.483mm x 0.025mm) | .010 ± .0015 inch (0.254 mm ± 0.038 mm) | .003 inch diameter (0.076 mm diameter) | .004 inch diameter (0.102 mm diameter) | 376 |
| 2N2857 |  | JANHCA2N2857 JANKCA2N2857 | .016 X .016 inch (0.406 mm x 0.406 mm) | .008 ± .0016 inch (0.2032 mm ± 0.0406 mm) | .0023 X .0023 inch (0.058 mm x 0.058mm) | .0023 X .0023 inch (0.058m m x 0.058 mm) | 343 |
| 2N4033 |  | JANHCA2N4033 JANKCA2N4033 | .030 X .030 inch (0.762mm x 0.762mm) | .008 ± .0016 inch (0.2032 mm ± 0.0406 mm) | .005 inch diameter (0.127mm diameter) | .005 inch diameter (0.126 mm) | 512 |
| 2N3501 |  | JANHCB2N3501 JANKCB2N3501 | 0.024 x 0.026 inch 0.61 mm x 0.66 mm) | .010 ± .0051 inch (0.254 mm ± 0.038 mm) | .004 x .006 inch (0.102 mm x .0.152 mm) | .004x .0055 inch (0.102 mm x 0.140 mm) | 366 |
| 2N2946A |  | JANHCA2N2946A JANKCA2N2946A | .020 X .020 inch (0.508mm x 0.508mm) | .008 ± .0 mm16 inch mm (0.2032 ± 0.0406 mm) | .002 X .003 inch (0.051mm x 0.076 mm) | .004 X .004 inch (0.102 mm x 0.102 mm) | 382 |
| 2N3227 |  | JANHCB2N3227 JANKCB2N3227 | 0.16 x 0.16 inch 0.41 mm x 0.41 mm) | .008 ± .0016 inch (0.2032 mm ± 0.0406 mm) | .0036 x .0028 inch (.091 mm x .07112 mm) | .0036 x .0028 inch (.091 mm x .07112 mm) | 317 |
| 2N2369A |  | JANHCB2N2369 JANKCB2N2369 | 0.16 x 0.16 inch 0.41 mm x 0.41 mm) | .008 ± .0016 inch (0.2032 mm ± 0.0406 mm) | .0036 x .0028 inch (.091 mm x .07112 mm) | .0036 x .0028 inch (.091 mm x .07112 mm) | 317 |

Additional devices available upon request.



TRANSISTOR DIE

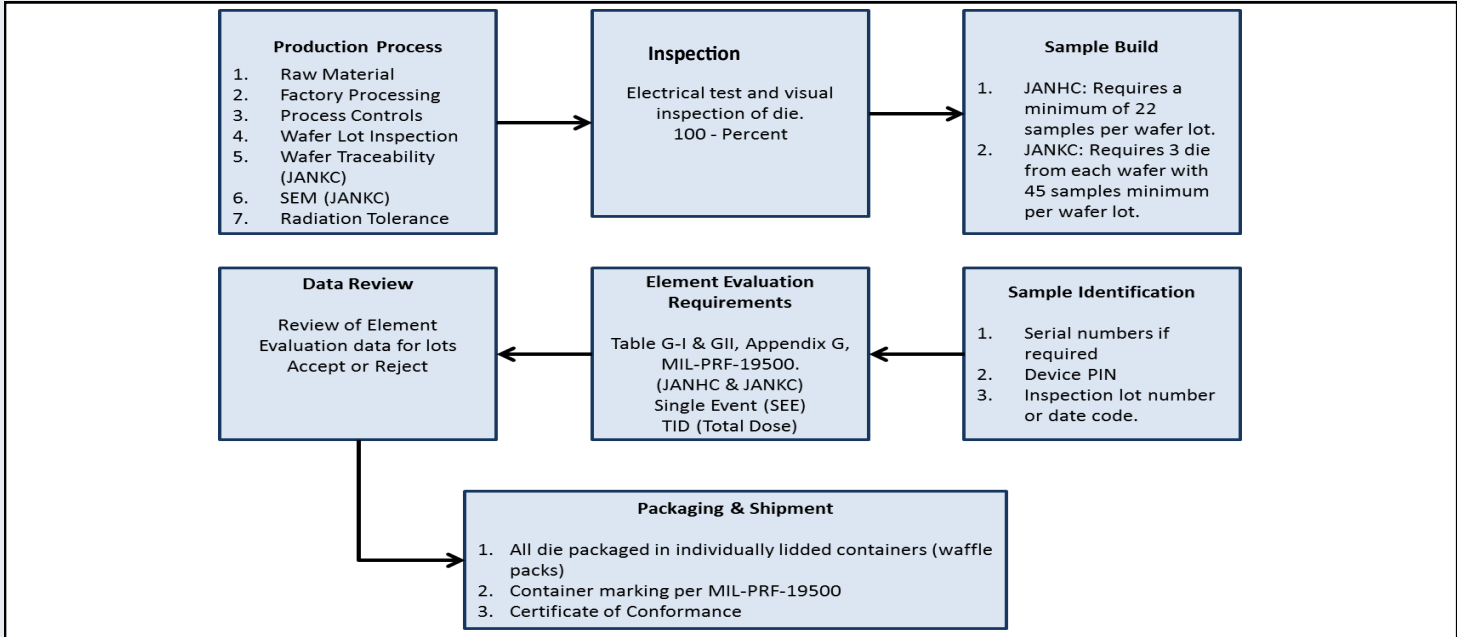
| Part Number | Package | Type | VCEO (V) | VCBO (V) | VEBO (V) | IC (A) |
|-------------|---------|------|----------|----------|----------|--------|
| 2N0918 | TO-72 | NPN | 15 | 30 | 3 | 0.05 |
| 2N2222A | TO-18 | NPN | 50 | 75 | 6 | 0.8 |
| 2N2369A | TO-18 | NPN | 15 | 40 | 4.5 | 0.1 |
| 2N2484 | TO-18 | NPN | 60 | 60 | 6 | 0.05 |
| 2N2857 | TO-72 | NPN | 15 | 30 | 3 | 0.04 |
| 2N2906A | TO-18 | PNP | 60 | 60 | 5 | 0.6 |
| 2N2907A | TO-18 | PNP | 60 | 60 | 5 | 0.6 |
| 2N2946A | TO-46 | PNP | -35 | -40 | -40 | 0.1 |
| 2N3019 | TO-5 | NPN | 80 | 140 | 7 | 1.0 |
| 2N3227 | TO-18 | NPN | 15 | 40 | 4.5 | 0.1 |
| 2N3501 | TO-39 | NPN | 150 | 150 | 6 | 0.3 |
| 2N3700 | TO-18 | NPN | 80 | 140 | 7 | 1.0 |
| 2N4033 | TO-39 | PNP | 80 | 80 | 5 | 1.0 |
| 2N6193 | TO-39 | PNP | 100 | 100 | 6 | 5.0 |

ELECTRICAL SPECIFICATIONS

| Power (W) Ta | Rtja (°C/W) | Tstg/Top (°C) | Max HFE | VCE(sat) (V) |
|--------------|-------------|---------------|---------|--------------|
| 0.2 | x | -65 to +200 | 200 | 0.4 |
| 0.5 | 325 | -65 to +200 | 325 | 0.3 |
| 0.36 | 400 | -65 to +200 | 120 | 0.2 |
| 0.36 | 325 | -65 to +200 | 800 | 0.3 |
| 0.2 | 400 | -65 to +200 | 150 | 0.4 |
| 0.5 | 325 | -65 to +200 | 175 | 0.4 |
| 0.5 | 325 | -65 to +200 | 450 | 0.4 |
| 0.4 | 435 | -65 to +200 | 50 | 0.5 |
| 0.8 | 175 | -65 to +200 | 300 | 0.2 |
| 0.36 | 400 | -65 to +200 | 300 | 0.2 |
| 1.0 | 175 | -65 to +200 | 300 | 0.2 |
| 0.5 | 325 | -65 to +200 | 300 | 0.2 |
| 0.8 | 195 | -65 to +200 | 300 | 0.15 |
| 1.0 | 175 | -65 to +200 | 240 | 0.7 |



Die Lot Acceptance / Element Evaluation



Die Packaging / Shipping Procedure



Marking

1. Type designation
2. Applicable specification sheet number
3. Manufacturer's logo or symbol
4. Lot identifications code
5. Quantity
6. ESD symbol if applicable
7. Wafer identity for JANKC

How do we ship?

1. We use Chip Carriers / Waffle Packs which are then vacuum sealed prior to shipment.
2. For ESD sensitive devices (class 1 and 2), conductive or anti-static containers are used.

Certificate of Conformance is included with every shipment.

Reps

| Territory | Rep | Contact |
|---------------------|-----------------|--------------|
| Southern California | Westrep CA | 714.527-2822 |
| Southwest | Reptronix | 602.230-2630 |
| South Central | West Associates | 972.680-2800 |
| New England | Focus Sales | 508.824-4692 |
| North Central | Customer 1st | 952.851-7909 |
| Mid Atlantic | Trionic | 516.304-5065 |
| Rocky Mountain | Intermountain | 801.572-4010 |
| Southeast | Novus Group | 256.534-0044 |

Distribution



ES | Components

108 Pratts Junction Road, Sterling, MA 01564

Sales: 978.422-7641

Applications: 480.266-9737

Curt Olsen, Director of Sales

