# CS20L40CT-A / CS20L45CT-A

**Chip Integration Technology Corporation**

**Super Low Barrier High Voltage Power Rectifier**

## Main Product Characteristics

| | |
|---|---|
| $I_{F(AV)}$ | 2x10A |
| $V_{RRM}$ | 40V/45V |
| $T_J$ | 150°C |
| $V_{(Typ)}$ | 0.42V |

## ■ Features

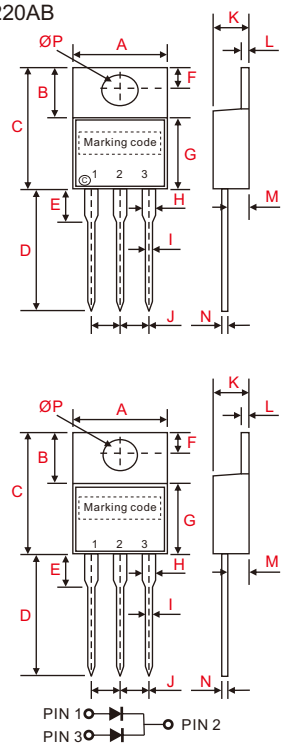
- Low forward voltage drop.
- Excellent high temperature stability.
- Fast switching capability.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

## ■ Mechanical data

- Epoxy : UL94-V0 rated flame retardant.
- Case : JEDEC TO-220AB molded plastic body.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Polarity: As marked.
- Mounting Position : Any.
- Weight : Approximated 2.25 gram.

## ■ Outline

TO-220AB




| symbol | Dimensions in inches(millimeters) | |
|---|---|---|
| | Min | Max |
| A | 0.398(10.1) | 0.406(10.3) |
| B | 0.236(6.0) | 0.252(6.4) |
| C | 0.579(14.7) | 0.594(15.1) |
| D | 0.543(13.8) | 0.551(14.0) |
| E | 0.143(3.63) | 0.159(4.03) |
| F | 0.104(2.64) | 0.112(2.84) |
| G | 0.335(8.5) | 0.350(8.9) |
| H | 0.046(1.17) | 0.054(1.37) |
| I | 0.028(0.71) | 0.036(0.91) |
| J | 0.098(2.49) | 0.102(2.59) |
| K | 0.176(4.47) | 0.184(4.67) |
| L | 0.046(1.17) | 0.054(1.37) |
| M | 0.102(2.6) | 0.110(2.8) |
| N | 0.019(0.28) | 0.021(0.48) |
| ØP | 0.147(3.74) | 0.155(3.94) |

**Alternate**

| symbol | Dimensions in inches(millimeters) | |
|---|---|---|
| | Min | Max |
| A | 0.394(10.0) | 0.413(10.5) |
| B | 0.228(5.8) | 0.268(6.8) |
| C | 0.570(14.48) | 0.625(15.87) |
| D | 0.519(13.18) | 0.558(14.18) |
| E | 0.089(3.5) | 0.099(3.9) |
| F | 0.100(2.54) | 0.120(3.04) |
| G | 0.330(8.38) | 0.350(8.9) |
| H | 0.045(1.15) | 0.060(1.52) |
| I | 0.029(0.75) | 0.037(0.95) |
| J | 0.095(2.42) | 0.105(2.66) |
| K | 0.160(4.07) | 0.190(4.82) |
| L | 0.045(1.15) | 0.055(1.39) |
| M | 0.080(2.04) | 0.110(2.8) |
| N | 0.013(0.33) | 0.019(0.52) |
| ØP | 0.148(3.75) | 0.156(3.95) |

Dimensions in inches and (millimeters)

## ■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Parameter | Conditions | Symbol | CS20L40CT-A | CS20L45CT-A | UNIT |
|---|---|---|---|---|---|
| Marking code | | | CS20L40CT | CS20L45CT | |
| Peak repetitive reverse voltage<br>Working peak reverse voltage<br>DC blocking voltage | | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 40 | 45 | V |
| Forward rectified current (total device) | | $I_O$ | 20 | | A |
| Forward surge current (per diode) | 8.3ms single half sine-wave superimposed on rate load (JEDEC method) | $I_{FSM}$ | 250 | | A |
| Peak repetitive reverse surge current (per diode) | 2us - 1kHz | $I_{RRM}$ | 3 | | A |
| Thermal resistance(1) | Junction to case | $R_{\theta JC}$ | 2 | | °C/W |
| Operating and Storage temperature | | $T_J$, $T_{STG}$ | -55 ~ +150 | | °C |

| Parameter | Conditions | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Forward voltage drop (per diode) | $I_F$ = 10A, $T_J$ = 25°C | $V_F$ | | | 500 | mV |
| | $I_F$ = 10A, $T_J$ = 125°C | | | 420 | 470 | |
| | $I_F$ = 20A, $T_J$ = 25°C | | | | 600 | |
| Reverse current (per diode) | $V_R$ = $V_{RRM}$ $T_J$ = 25°C | $I_R$ | | | 0.5 | mA |
| | $V_R$ = $V_{RRM}$ $T_J$ = 125°C | | | | 100 | |

Note : 1.Thermal resistance from junction to case per leg, with heatsink size(1.35" x 0.95" x 0.18") Al-plate.



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■ Rating and characteristic curves

Fig. 1 - Instantaneous Forward Characteristics (per diode)

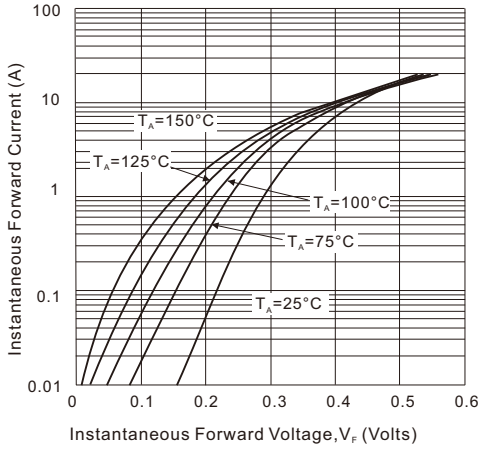



Fig.1 - Forward Current Derating Curve (per diode)

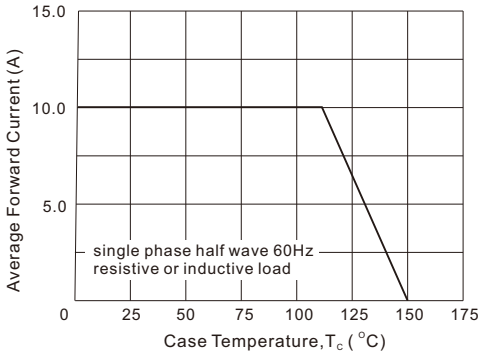
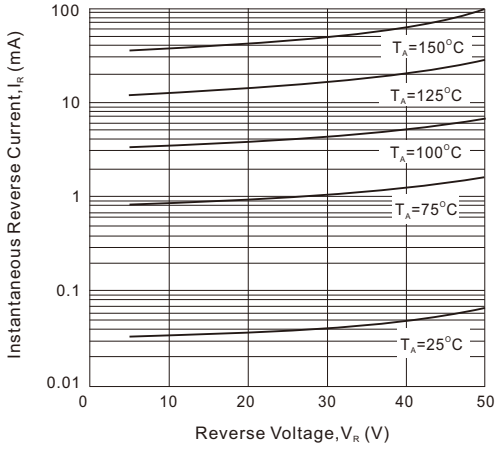



Fig. 3 - Reverse Characteristics (per diode)



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