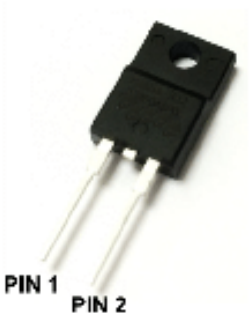
# SICF10C60

**Chip Integration Technology Corporation** — **10A SiC Schottky Diode**

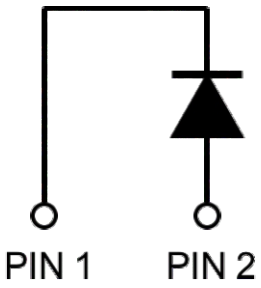
## Main Product Characteristics

| | |
|---|---|
| $I_{F(AV)}$ | 10A, $T_c$=76°C |
| $V_{RRM}$ | 600V |
| $T_J$ | 175°C |
| $V_{F(Typ)}$25°C | 1.5V |

## ■ Outline




Package ITO-220AC




Inner Circuit

## ■ Features

- Low Conduction and Switching Loss
- Positive Temperature Coefficient on $V_F$
- Temperature Independent Switching Behavior
- Fast Reverse Recovery
- High Surge Current Capability
- Pb-free lead plating

## ■ Benefits

- Higher System Efficiency
- Parallel Device Convenience
- High Temperature Application
- High Frequency Operation
- Hard Switching & High Reliability
- Environmental Protection

## ■ Applications

- SMPS
- PFC
- Solar/Wind Renewable Energy
- Power Inverters
- Motor Drives

## ■ Maximum ratings and electrical characteristics

| Parameter | Conditions | Symbol | SIC10C60 | UNIT |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage | $T_J$=25°C | $V_{RRM}$ | 600 | V |
| Peak Reverse Surge Voltage | $T_J$=25°C | $V_{RSM}$ | 600 | |
| DC Blocking Voltage | $T_J$=25°C | $V_R$ | 600 | |
| Continuous Forward Current | $T_c$=25°C | $I_F$ | 13 | A |
| | $T_c$=80°C | | 10 | |
| | $T_c$=135°C | | 5 | |
| Non-Repetitive Peak Forward surge current | $T_c$=25°C,$T_p$=10ms,Half Sine-Wave | $I_{FSM}$ | 76 | A |
| | $T_c$=125°C,$T_p$=10ms,Half Sine-Wave | | 65 | |
| | $T_c$=25°C,$T_p$=10us,Pulse | | 371 | |
| Repetitive Peak Forward surge current | $T_c$=25°C,$T_p$=10ms,Half Sine-Wave,D=0.1 | $I_{FRM}$ | 57 | A |
| | $T_c$=125°C,$T_p$=10ms,Half Sine-Wave,D=0.1 | | 48 | |
| Power Dissipation | $T_c$=25°C | $P_D$ | 27.5 | W |
| | $T_c$=125°C | | 9 | |
| Operation Junction and Storage Temperature | | $T_J$ | 175 | °C |
| | | $T_{stg}$ | -55 to 175 | |
| Thermal Resistance Junction to Case | | $R_{\theta JC}$ | 5.45 | °C/W |

| Parameter | Conditions | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| DC Blocking Voltage | $I_R$=100uA,$T_J$=25°C | $V_{DC}$ | | >650 | | V |
| Forward Voltage | $I_F$=10A,$T_J$=25°C | $V_F$ | | 1.5 | 1.8 | V |
| | $I_F$=10A,$T_J$=175°C | | | 1.8 | 2.2 | |
| Reverse Current | $V_R$=600V,$T_J$=25°C | $I_R$ | | <1 | 50 | uA |
| | $V_R$=600V,$T_J$=175°C | | | 15 | 160 | |
| Total Capacitive Charge | $I_F$=10A,dI/dt=300A/us, $V_R$=400V,$T_J$=25°C | $Q_C$ | | 19 | | nC |
| Total Capacitive | $V_R$=1V,$T_J$=25°C,f=1MHz | C | | 398 | | pF |
| | $V_R$=200V,$T_J$=25°C,f=1MHz | | | 53 | | |
| | $V_R$=400V,$T_J$=25°C,f=1MHz | | | 52 | | |



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■ Rating and characteristic curves

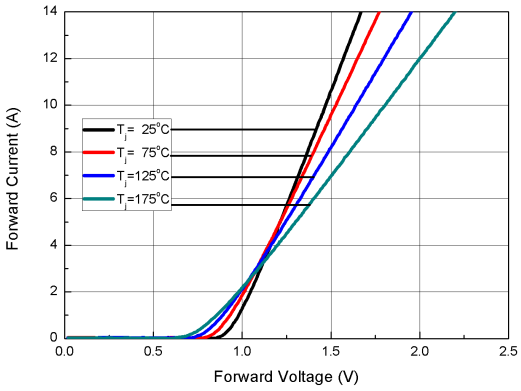


**Fig. 1 Forward Characteristics**

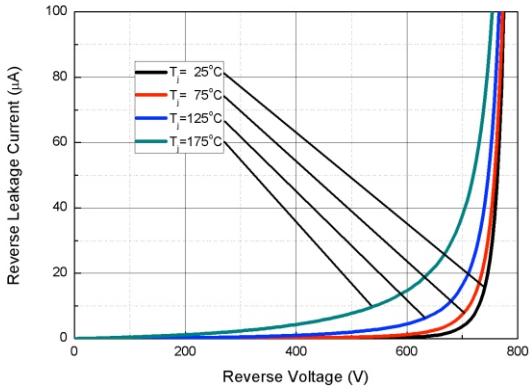


**Fig. 2 Reverse Characteristics**

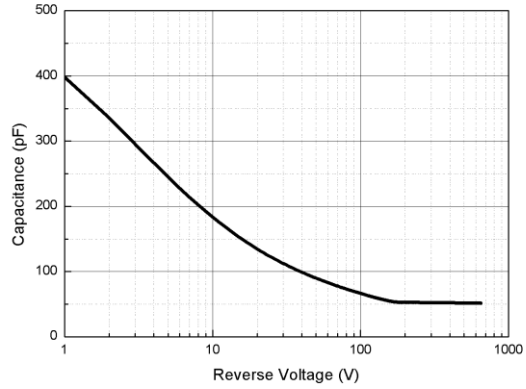


**Fig. 3 Capacitance vs. Reverse Voltage**

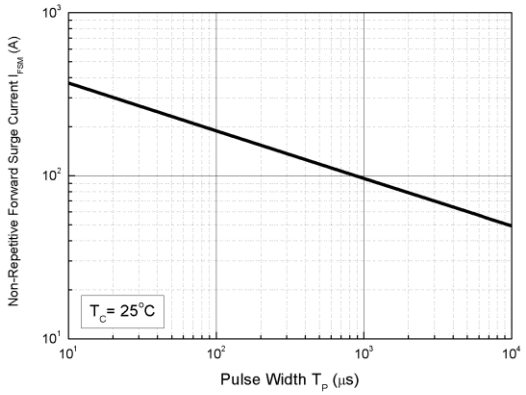


**Fig. 4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)**

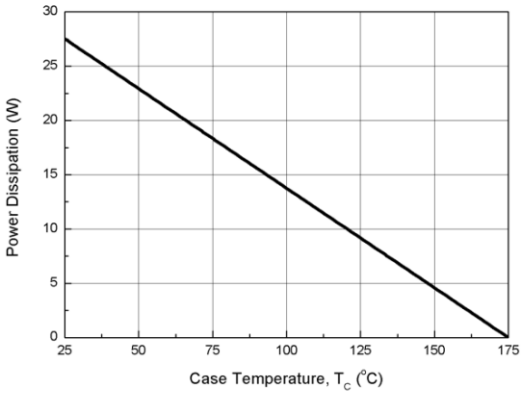


**Fig. 5 Power Derating**

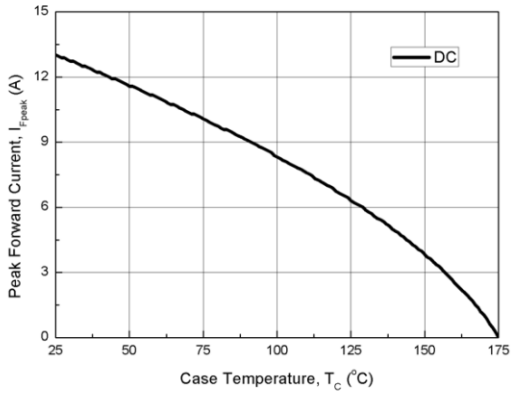


**Fig. 6 Current Derating**



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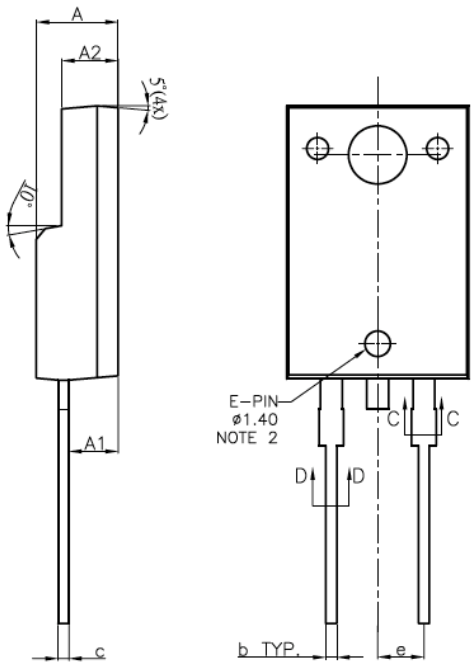
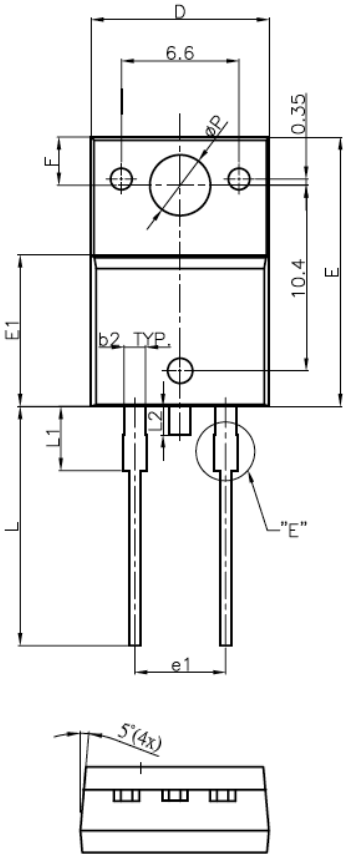
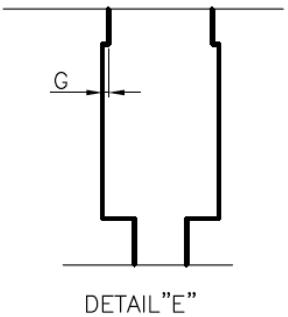
## ■ Outline

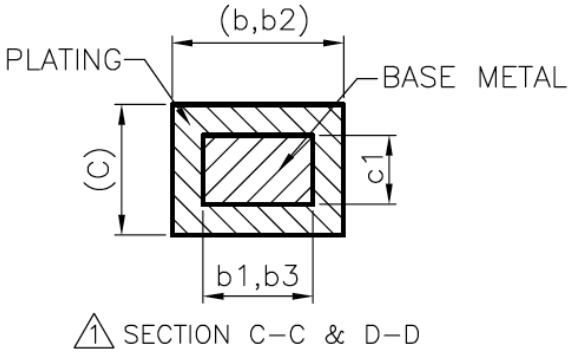






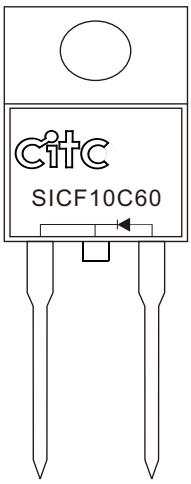



| SYMBOLS | DIMENSIONS IN MILLIMETERS | | | DIMENSIONS IN INCHES | | |
|---|---|---|---|---|---|---|
| | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 4.20 | 4.50 | 4.80 | 0.165 | 0.177 | 0.189 |
| A1 | 2.50 | --- | 2.90 | 0.098 | --- | 0.114 |
| A2 | 2.90 | 3.10 | 3.30 | 0.114 | 0.122 | 0.130 |
| b | 0.30 | --- | 0.93 | 0.012 | --- | 0.037 |
| b1 | 0.30 | 0.60 | 0.90 | 0.012 | 0.024 | 0.035 |
| b2 | 1.00 | --- | 1.43 | 0.039 | --- | 0.056 |
| b3 | 1.00 | 1.20 | 1.40 | 0.039 | 0.047 | 0.055 |
| c | 0.50 | --- | 0.73 | 0.020 | --- | 0.029 |
| c1 | 0.50 | 0.60 | 0.70 | 0.020 | 0.024 | 0.028 |
| D | 9.90 | 10.00 | 10.10 | 0.390 | 0.394 | 0.398 |
| E | 14.80 | 15.10 | 15.40 | 0.583 | 0.594 | 0.606 |
| E1 | 8.40 | 8.50 | 8.60 | 0.331 | 0.335 | 0.339 |
| e | --- | 2.55 BSC | --- | --- | 0.100 BSC | --- |
| e1 | --- | 5.10 BSC | --- | --- | 0.200 BSC | --- |
| F | 2.55 | 2.70 | 2.85 | 0.100 | 0.106 | 0.112 |
| G | 0.00 | --- | 0.127 | 0.000 | --- | 0.005 |
| L | 13.00 | 13.40 | 13.80 | 0.512 | 0.528 | 0.543 |
| L1 | 3.45 | 3.60 | 3.75 | 0.136 | 0.142 | 0.148 |
| L2 | --- | --- | 1.60 | --- | --- | 0.063 |
| øP | 2.90 | 3.20 | 3.50 | 0.114 | 0.126 | 0.138 |

NOTES:
1.All dimension are in mm[inch].
2.Tolerance : ±0.004inch.

## ■ Marking information




SICF10C60 : Product type marking code

: CITC Logo

## ■ Ordering/Packing infirmation

| | Part number | Case | Q'TY/Tube (PCS) | Q'TY Box(PCS) | Q'TY/Carton(PCS) |
|---|---|---|---|---|---|
| Halogen Free | SICF10C60 | ITO-220AC | 50 | 4,000 | 8,000 |

Notes : 1. For packaging details, please reference our website at http://www.citcorp.com.tw/tchinese/products/index.php



http://www.citcorp.com.tw/ Tel:886-3-5600628 Fax:886-3-5600636
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