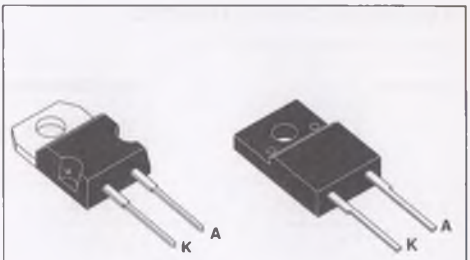
SGS-THOMSON MICROELECTRONICS

# DTV32(F)-1200A
# DTV32(F)-1500A

## (CRT HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

### FEATURES

- HIGH BREAKDOWN VOLTAGE CAPABILITY
- LOW AND MEDIUM FREQUENCY OPERATION
- SPECIFIED TURN ON SWITCHING CHARACTERISTICS
- TYPICAL TOTAL LOSSES : 2 W ($I_{Fpeak}$ = 6 A, F = 32 kHz)
- SUITABLE WITH **BUH** TRANSISTORS SERIES
- INSULATED VERSION (ISOWATT220AC) : Insulating voltage = 2000 V DC Capacitance = 12 pF




TO220AC (Plastic)

DTV32-1200A
DTV32-1500A

ISOWATT220AC (Plastic)

DTV32F-1200A
DTV32F-1500A

### DESCRIPTION

High voltage diode especially designed for horizontal deflection stage in standard and high resolution displays for TV's and monitors.
This device is packaged in TO220AC or ISOWATT220AC.

### ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | | | Value | Unit |
|---|---|---|---|---|---|
| $I_{F(RMS)}$ | RMS forward current | | | 15 | A |
| $I_{F(AV)}$ | Average forward current $\delta$ = 0.5 | TO220AC | Tc=130°C | 6 | A |
| | | ISOWATT220AC | Tc=115°C | 6 | |
| $I_{FSM}$ | Surge non repetitive forward current | | tp=10ms sinusoidal | 100 | A |
| Tstg<br>Tj | Storage and junction temperature range | | | - 40 to + 150<br>- 40 to + 150 | °C<br>°C |

| Symbol | Parameter | DTV32(F)- | | Unit |
|---|---|---|---|---|
| | | 1200A | 1500A | |
| $V_{RRM}$ | Repetitive peak reverse voltage | 1200 | 1500 | V |
| $V_{RWM}$ | Reverse working voltage | 1000 | 1350 | V |

## THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| Rth (j-c) | Junction to case | TO220AC | 2 | °C/W |
| | | ISOWATT220AC | 4 | |

## ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_R$ * | $T_j$ = 25°C | $V_R = V_{RWM}$ | | | 100 | µA |
| | $T_j$ = 100°C | | | | 1 | mA |
| $V_F$ ** | $T_j$ = 25°C | $I_F$ = 6 A | | | 1.3 | V |
| | $T_j$ = 100°C | $I_F$ = 6 A | | | 1.2 | |

Pulse test : * tp = 5 ms, duty cycle < 2 %
** tp = 380 µs, duty cycle < 2 %

RECOVERY CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| trr (1) | $T_j$ = 25°C | $I_F$ = 1 A $dI_F/dt$ = -15 A/µs<br>$V_R$ = 30 V | | 450 | 600 | ns |
| trr (2) | $T_j$ = 25°C | $I_F$ = 1 A $dI_F/dt$ = -50 A/µs<br>VR = 30 V | | 300 | | ns |
| trr | $T_j$ = 25°C | $I_F$ = 100mA $I_R$ = 100mA | | 250 | | ns |

TURN ON SWITCHING CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $t_{FR}$ (2) | $T_j$ = 100°C | $I_F$ = 6 A $dI_F/dt$ = 80 A/µs | | 0.5 | | µs |
| $V_{FP}$ (2) | | $V_{FR}$ = 2 V | | 30 | | V |

(1)Test following Jedec Standard
(2) Test representative of the application

To evaluate the conduction losses use the following equations :
$V_F = 1.0 + 0.025\ I_F$ $\quad P = 1.0 \times I_{F(AV)} + 0.025 \times I_F{}^2{}_{(RMS)}$

**Fig.1** : Average forward power dissipation versus average forward current.

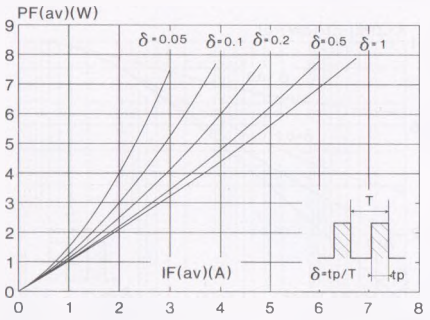



**Fig.2** : Peak current versus form factor.

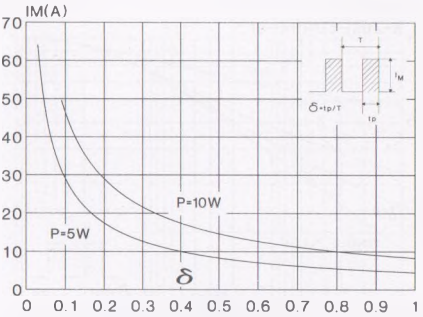



**Fig.3** : Average current versus ambient temperature. (duty cycle : 0.5) (TO220AC)

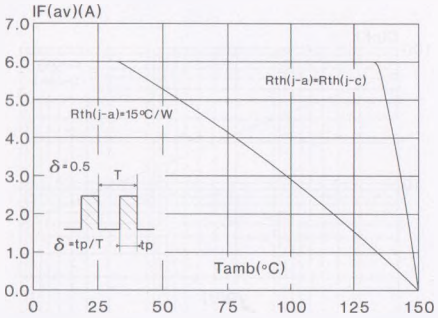



**Fig.4** : Average current versus ambient temperature. (duty cycle : 0.5) (ISOWATT220AC)

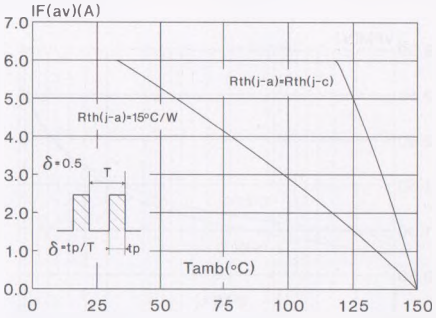



**Fig.5** : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (TO220AC)

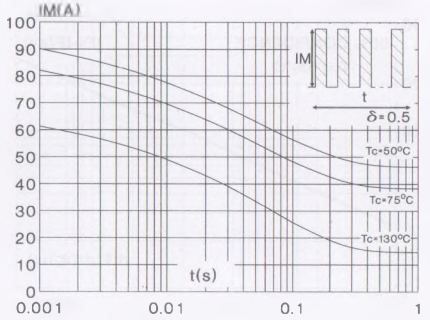



**Fig.6** : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (ISOWATT220AC)

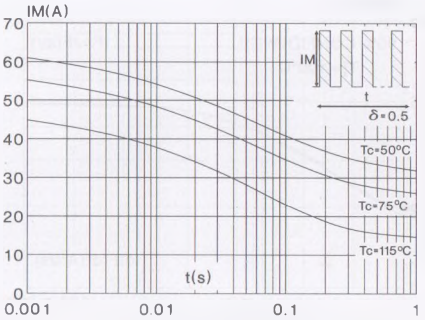


**Fig.7** : Relative variation of thermal transient impedance junction to case versus pulse duration.
(TO220AC)

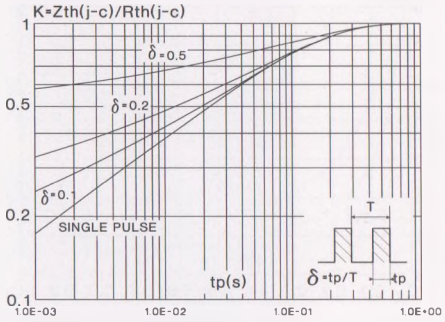



**Fig.8** : Relative variation of thermal transient impedance junction to case versus pulse duration.
(ISOWATT220AC)

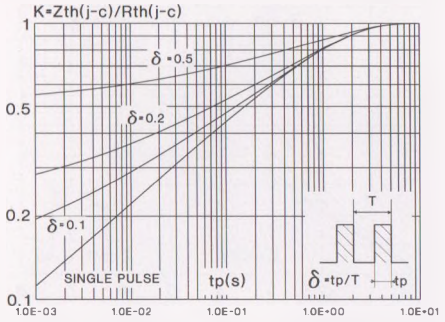



**Fig.9** : Forward voltage drop versus forward current.
(Maximum values)

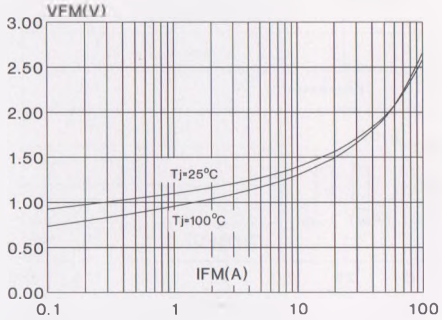



**Fig.10** : Junction capacitance versus reverse voltage applied.
(Typical values)

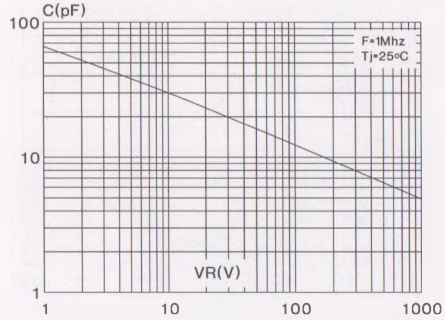



**Fig.11** : Recovery charge versus dIF/dt.

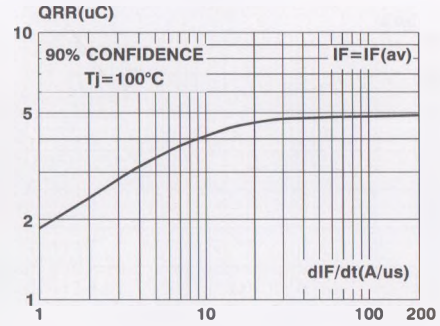



**Fig.12** : Peak reverse current versus dIF/dt.

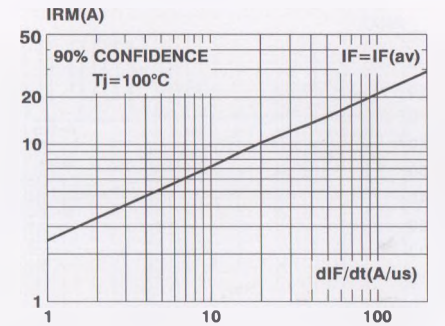


**Fig.13** : Dynamic parameters versus junction temperature.

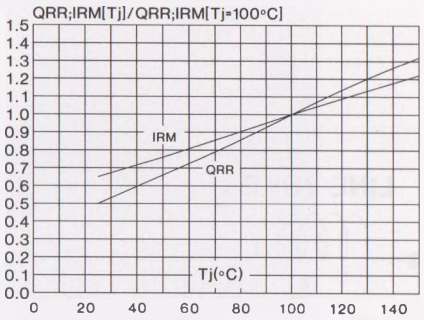



**Fig.14** : Peak forward voltage versus $dI_F/dt$.

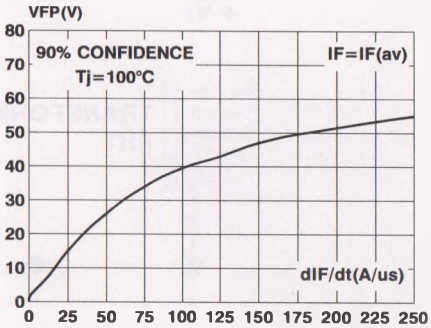
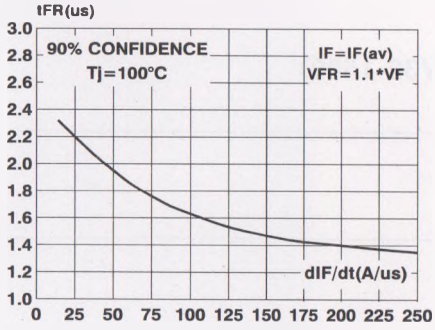
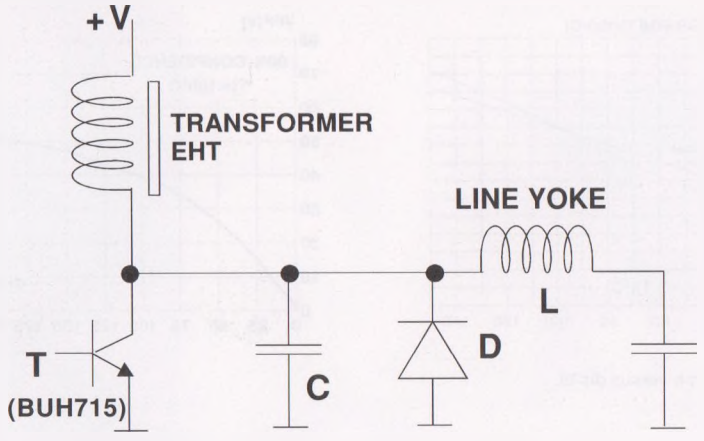



**Fig.15** : Recovery time versus $dI_F/dt$.

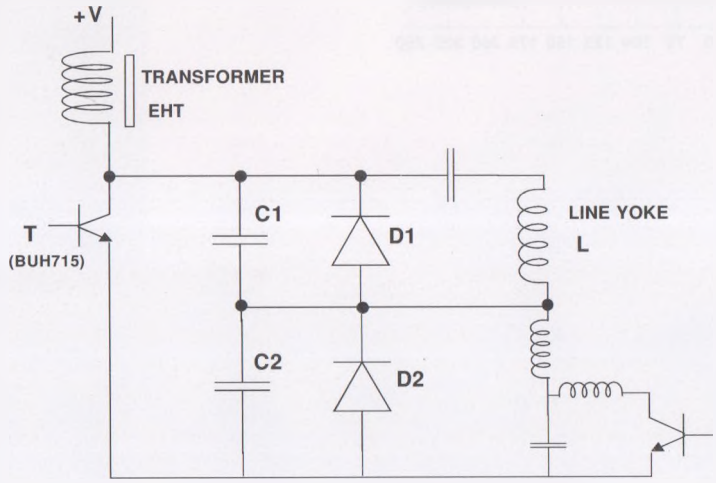


## BASIC HORIZONTAL DEFLECTION CIRCUIT




(D=DAMPER DIODE DTV32-1500)

## BASIC E-W DIODE MODULATOR CIRCUIT




D1=DTV32-1500 D2=BYT08-400