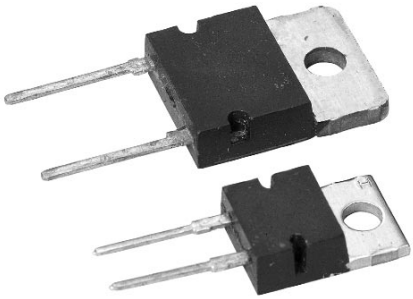
# Fast Recovery Rectifier Diodes [1)]

**SKR 20 F**
**SKR 31 F**
**SKR 48 F**

| $V_{RSM}$ / $V_{RRM}$ | $I_{FRMS}$ (maximum values for continuous operation) 30 A | 47 A | 72 A |
|---|---|---|---|
| | $I_{FAV}$ (sin. 180; $T_{case}$ = 85 °C; 50 Hz) | | |
| V | 20 A | 31 A | 48 A |
| 1000 | **SKR 20F10** | **SKR 31F10** | **SKR 48F10** |
| 1200 | **SKR 20F12** | **SKR 31F12** | **SKR 48F12** |



| Symbol | Conditions | SKR20F | SKR31F | SKR48F | Units |
|---|---|---|---|---|---|
| $I_{FAV}$ | sin. 180; $T_{case}$ = 85 °C | 20 | 31 | 48 | A |
| $I_{FSM}$ | $T_{vj}$ = 25 °C; 10 ms | 150 | 320 | 500 | A |
| | $T_{vj}$ = 150 °C; 10 ms | 140 | 300 | 450 | A |
| $i^2t$ | $T_{vj}$ = 25 °C; 8,3 ... 10 ms | 110 | 510 | 1250 | $A^2s$ |
| | $T_{vj}$ = 150 °C; 8,3 ... 10 ms | 100 | 450 | 1000 | $A^2s$ |
| $I_{RRM}$ | $T_{vj}$ = 25 °C | 12 [2)] | 19 [3)] | 23 [4)] | A |
| | $T_{vj}$ = 125 °C | 16 [2)] | 25 [3)] | 35 [4)] | A |
| $Q_{rr}$ | $T_{vj}$ = 25 °C typ. | 1,5 [2)] | 2 [3)] | 3 [4)] | µC |
| | $T_{vj}$ = 125 °C typ. | 2,7 [2)] | 4,5 [3)] | 8 [4)] | µC |
| $t_{rr}$ | $T_{vj}$ = 25 °C typ. | 80 [2)] | 100 [3)] | 80 [4)] | ns |
| $I_R$ | $T_{vj}$ = 25 °C; $V_R$ = $V_{RRM}$ | 0,1 | 0,1 | 0,2 | mA |
| | $T_{vj}$ = 125 °C; $V_R$ = $V_{RRM}$ | 2 | 4 | 4 | mA |
| $V_F$ | $T_{vj}$ = 25 °C; max ($I_F$ = . . . A) | 2,5 (15) | 2,35 (25) | 2,5 (50) | V A |
| $V_{(TO)}$ | $T_{vj}$ = 150 °C | 1,2 | 1,2 | 1,2 | V |
| $r_T$ | $T_{vj}$ = 150 °C | 70 | 44 | 22 | mΩ |
| $R_{thjc}$ | | 0,70 | 0,45 | 0,35 | °C/W |
| $R_{thch}$ | | 0,30 | 0,30 | 0,25 | °C/W |
| $T_{vj}$ | | – 40 ... 150 | | | °C |
| $T_{stg}$ | | – 40 ... 150 | | | °C |
| $M_1$ | to heatsink SI Units | 0,55...0,8 | 0,7...1 | 0,7...1 | Nm |
| | US units | 4,8 ...7,1 | 6,2...8,8 | 6,2...8,8 | lb. in. |
| w | approx. | 2 | 5 | 5 | g |
| Case | | E 39 | E 40 | E 40 | |

[1)] CAL (controlled axial lifetime) technology, patent No. DE 43 10 44
[2)] $I_F$ = 15 A, di/dt = 400 A/µs, $V_R$ = 600 V
[3)] $I_F$ = 25 A, di/dt = 500 A/µs, $V_R$ = 600 V
[4)] $I_F$ = 50 A, di/dt = 800 A/µs, $V_R$ = 600 V

### Features

- Very short recovery times
- Soft recovery under all conditions
- Up to 1200 V reverse voltage
- Epoxy meets UL 94V-0 flammability classification

### Typical Applications

- Inverse diode for power transistors
- Inverter, UPS
- Snubber and clamping diode

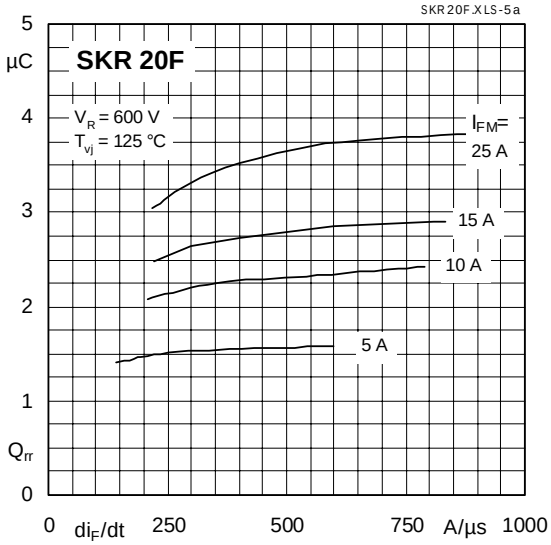



Fig. 5 a Typ. recovered charge

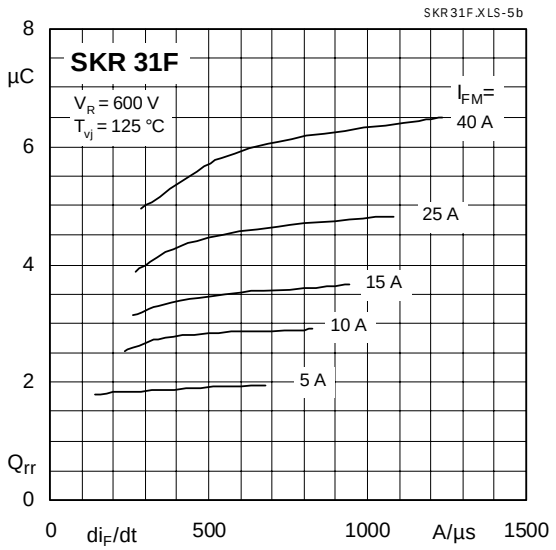



Fig. 5 b Typ. recovered charge

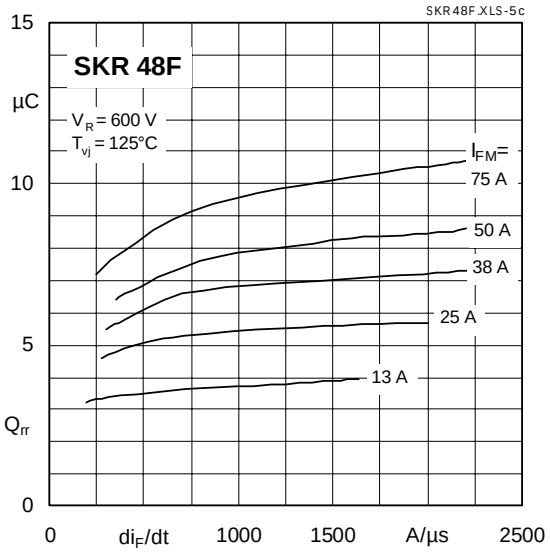



Fig. 5 c Typ. recovered charge

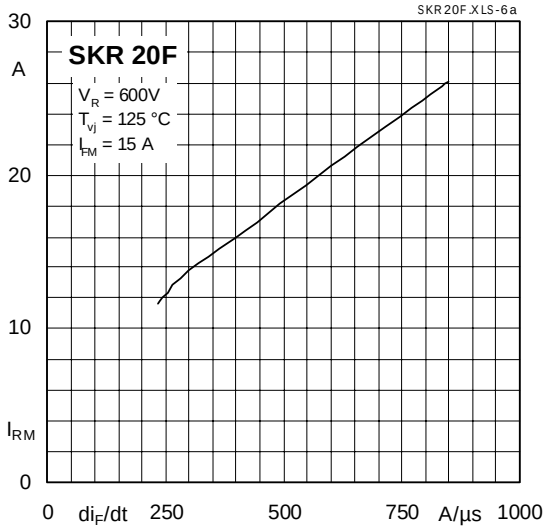



Fig. 6 a Typ. peak reverse recovery current

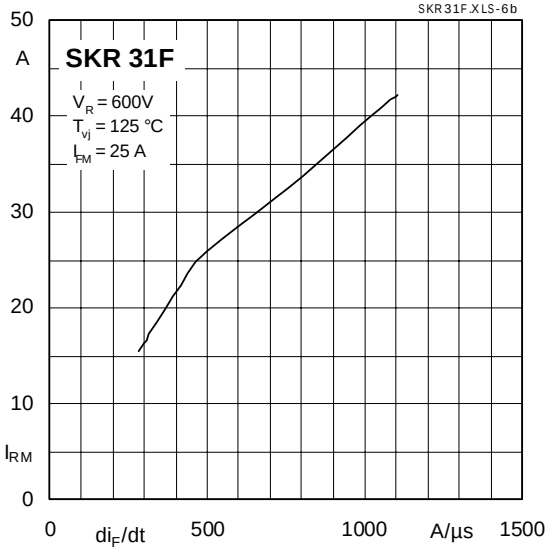



Fig. 6 b Typ. peak reverse recovery current

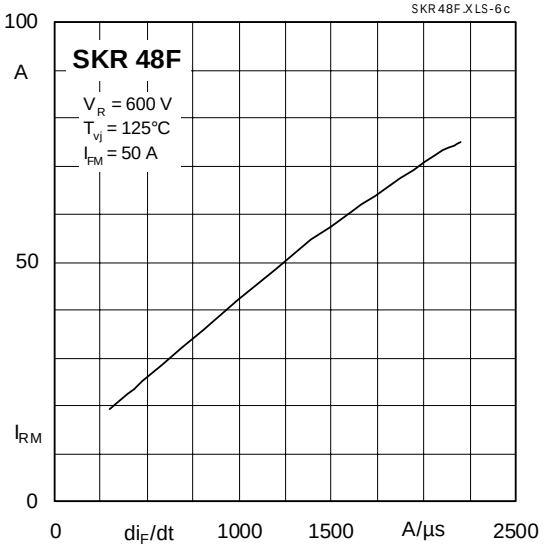



Fig. 6 c Typ. peak reverse recovery current

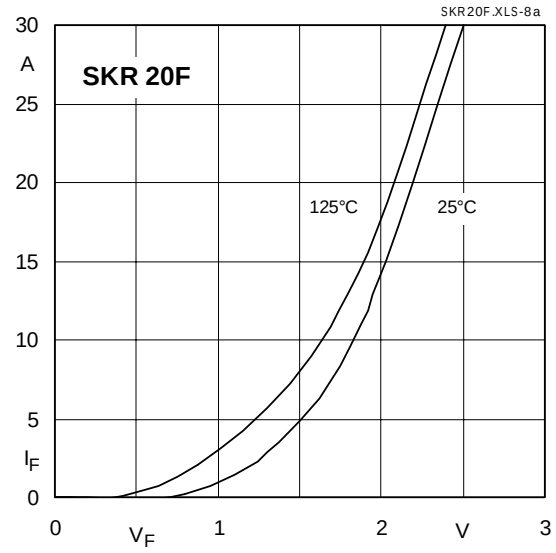



Fig. 8 a Typ. forward characteristics

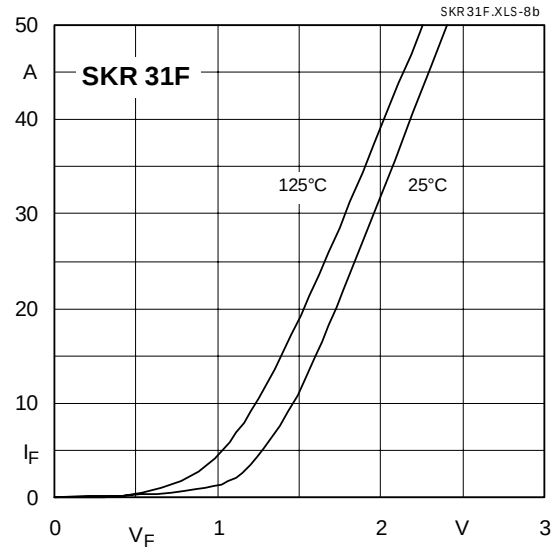



Fig. 8 b Typ. forward characteristics

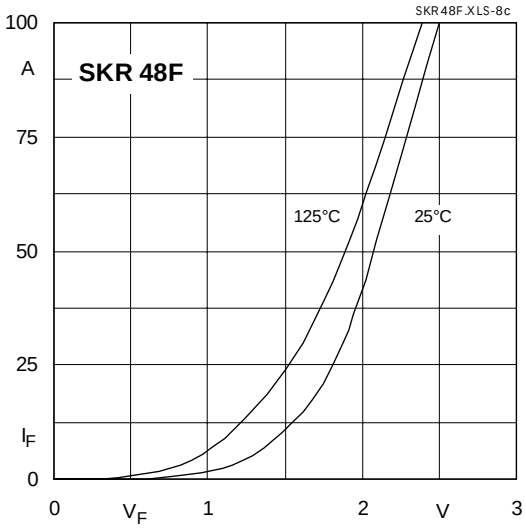



Fig. 8 c Typ. forward characteristics

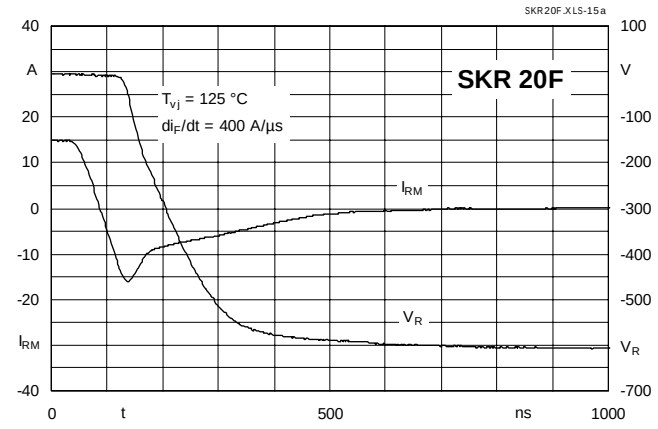



Fig. 15 a Typ. reverse recovery characteristics

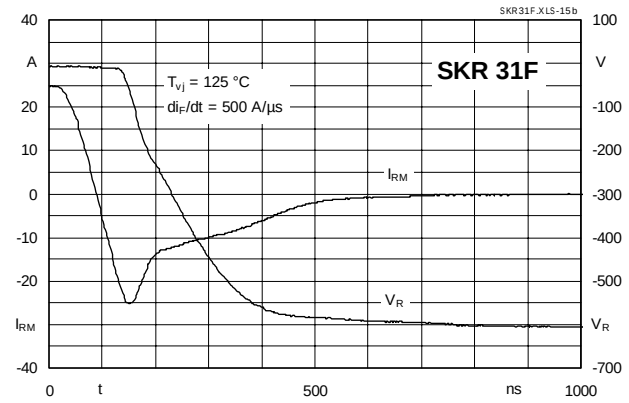



Fig. 15 b Typ. reverse recovery characteristics

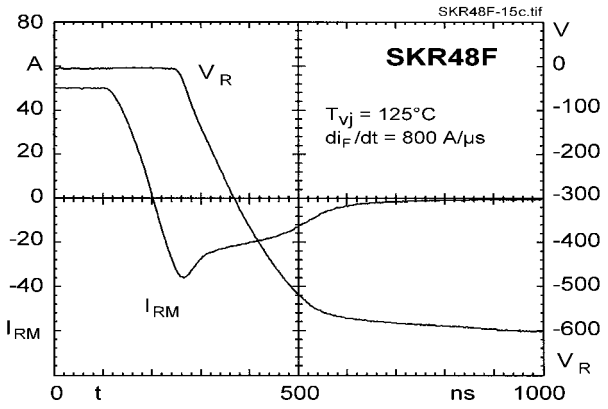
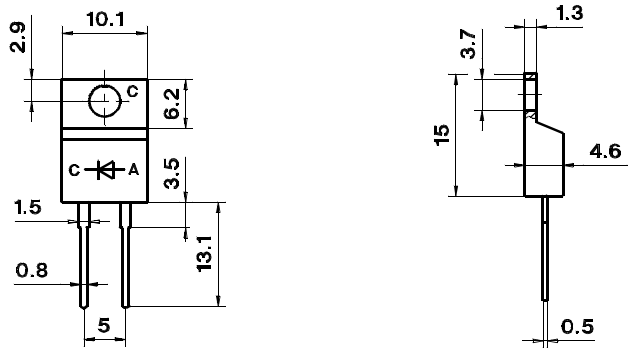



Fig. 15 c Typ. reverse recovery characteristics

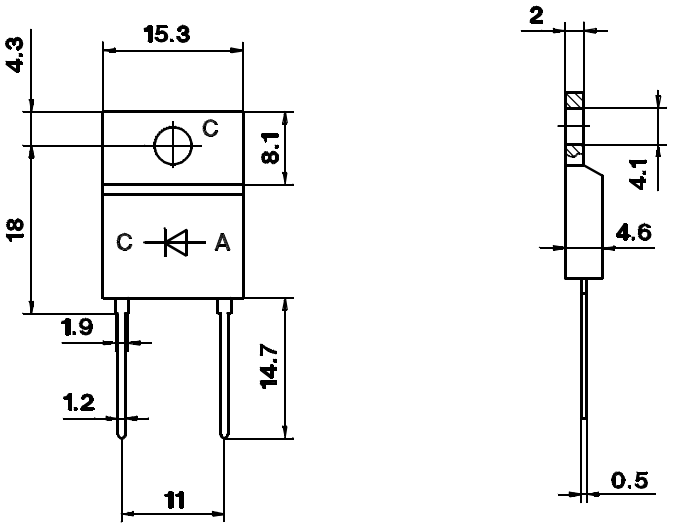
**SKR 20 F**

Case E 39
TO-220 AC




**SKR 31 F**
**SKR 48 F**

Case E 40
TO-218




Dimensions in mm