SEMICONDUCTOR

# JK1S/JK2S240-45
# Power Schottky Rectifier ,240A

## Features

- International standard package SOT-227
- Very low $V_F$
- Extremely low switching losses
- Low $I_{RM}$-values
- Copper internally DBC isolated
- Insulated package($V_{ISO}$ =2500$V_{RMS}$ )

## Applications

- Rectifiers in switch mode power Supplies(SMPS)
- Free wheeling diode in low voltage converters

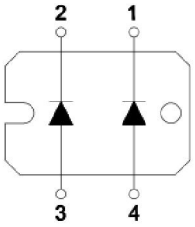
## Advantages

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses

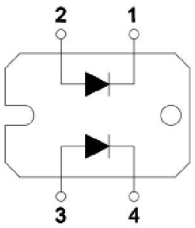
$I_{FAV}$=2×120A

$V_{RRM}$=45 V

$V_F$=0.59V



K1

K2

| Maximum Ratings | | | |
|---|---|---|---|
| **Symbol** | **Test Conditions** | **Ratings** | **Units** |
| $I_{FRMS}$ | | 150 | A |
| $I_{FAVM}$ | $T_C$ =105℃； Rectangular， d=0.5； per diode | 120 | |
| | $T_C$ =105℃； Rectangular， d=0.5； per module | 240 | |
| $I_{FSM}$ | $T_{VJ}$ = 45℃； $t_p$ = 10 ms (50 Hz)， sine | 1400 | |
| $(d_V/d_t)_{cr}$ | | 5000 | V/us |
| $T_{VJ}$ | | -40~+150 | ℃ |
| $T_{stg}$ | | -40~+150 | |
| $P_{tot}$ | $T_C$=25℃ | 310 | W |
| $M_d$ | Mounting torque(M4) | 1.1~1.5 | Nm |
| | Terminal connection torque(M4) | 1.1~1.5 | |
| Weight | Typical | 30 | g |
| $V_{ISOL}$ | 50/60$H_Z$， RMS， $I_{isol}$<1mA 1second | 3000 | V |
| | 1minute | 2500 | |

| Electrical and Thermal Characteristic | | | | | |
|---|---|---|---|---|---|
| Symbol | Test Conditions | | Values | | Units |
| | | | Typ. | Max. | |
| $I_R$ | $V_R=V_{RRM}$; $T_{VJ}=25^{\circ}C$(Pulse Width=5ms,Duty Cycle<2.0%) | | | 0.5 | mA |
| | $V_R=V_{RRM}$; $T_{VJ}=125^{\circ}C$(Pulse Width=5ms,Duty Cycle<2.0%) | | | 15 | |
| $V_F$ | $I_F$=120A； $T_{VJ}=125^{\circ}C$ | | | 0.59 | V |
| | $I_F$=120A； $T_{VJ}=25^{\circ}C$ | | | 0.7 | |
| $R_{thJC}$ | Junction to case | Par leg | | 0.8 | °C/W |
| | | Total | | 0.4 | |
| $R_{thCH}$ | | | 0.1 | | |

## Performance Curves

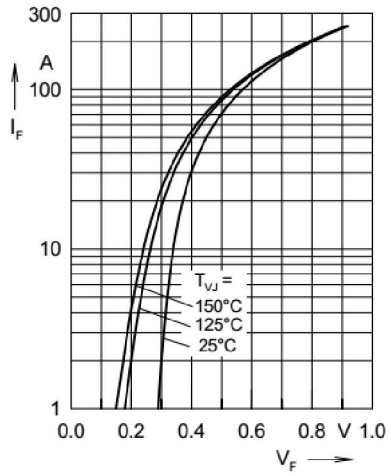



Fig. 1 Maximum forward voltage drop characteristics

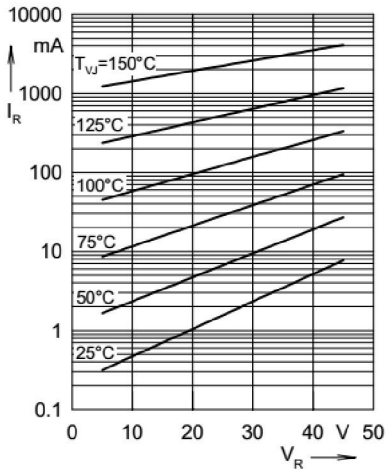



Fig. 2 Typ. value of reverse current $I_R$ versus reverse voltage $V_R$

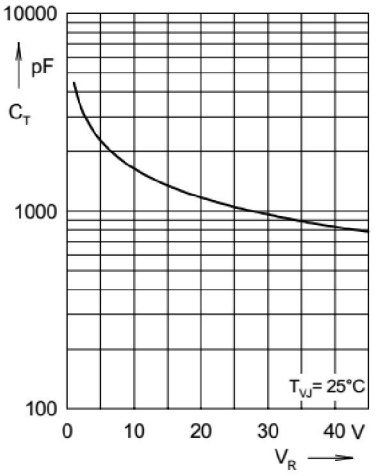



Fig. 3 Typ. junction capacitance $C_T$ versus reverse voltage $V_R$

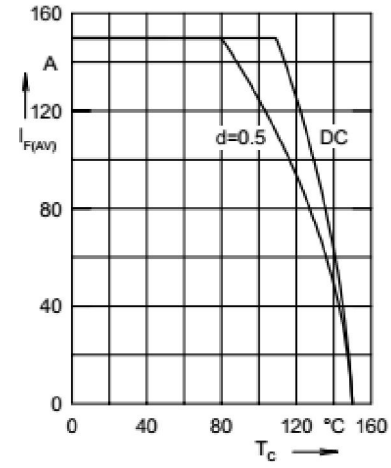



Fig. 4 Average forward current $I_{F(AV)}$ versus case temperature $T_C$

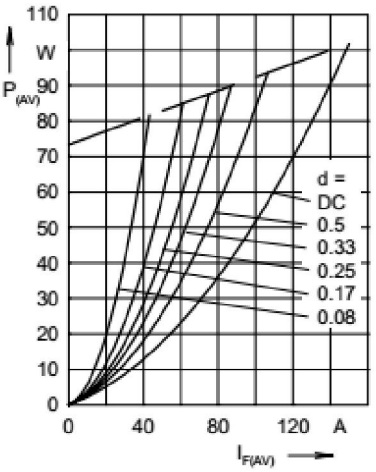



Fig. 5 Forward power loss characteristics

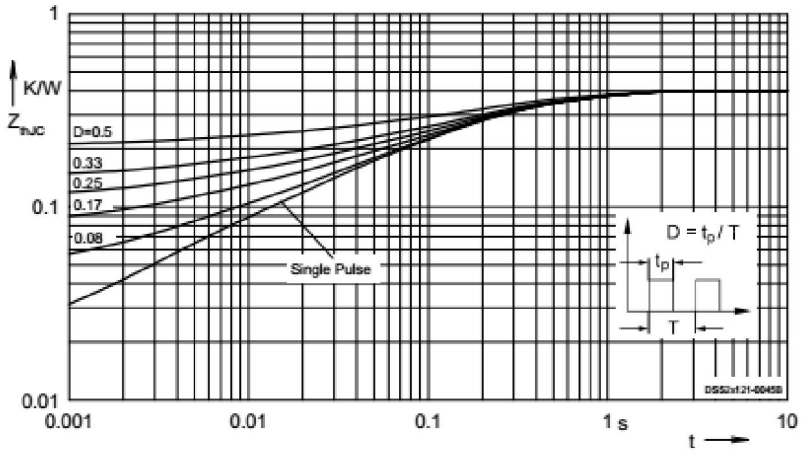



Fig. 6 Transient thermal impedance junction to case at various duty cycles

## Ordering Information Tabel

**Device code**

J K2 S 240 - 45

JF'S power module

Circuit configuration

K1=2 separate diodes, syntropy pin-out

K2=2 separate diodes, parallel pin-out

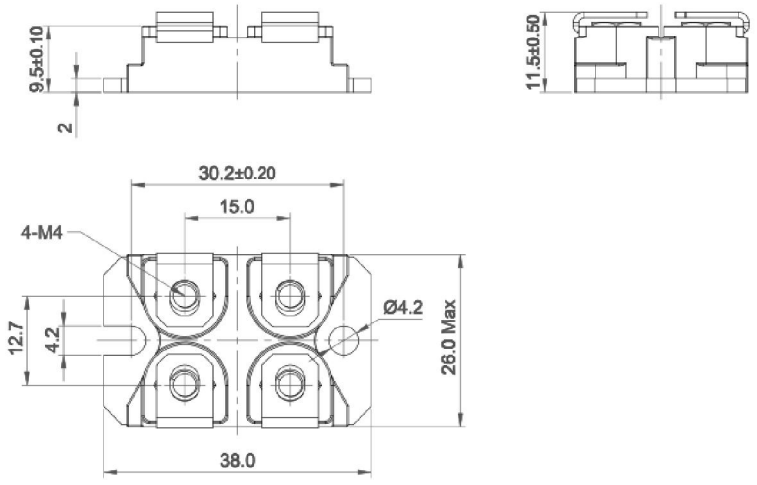
"S" for Schottky rectifier

Maximum average forward current (240A)

Voltage rating (45= 45V)

## Package Outline Information

**SOT-227 Package**




Dimensions in mm