

IW3527A, IW3527K, IW3549A, IW3549K, IW3563A, IW3563K

RECTIFIER-LIMITER DIODES

Functionality and application description

Rectifier-limiter diodes IW3527A, IW3527K, IW3549A, IW3549K, IW3563A, IW3563K (further on the diodes), are designed for rectifying current and limiting reverse voltage in automobile and tractor alternators, as well as in equipment of wide application made for national economy and export. The diodes are fabricated in two options:

IW3527A, IW3549A, IW3563A – anode on package, IW3527K, IW3549K, IW3563K – cathode on package. Package DO-21, KD-36.

Electrical parameters

| Parameter, unit | Symbol | Test conditions | Value | | Temperature, °C | |
|---|-----------|-----------------|-------------|---------------|-----------------|-----|
| | | | min | max | | |
| Diode break-down voltage, V for IW3527A, IW3527K | Ubr. | Irev = 5 mA | 18 | 24 | 25±10 | |
| for IW3549A, IW3549K | | | 36 | 46 | | |
| for IW3563A, IW3563K | | | 50 | 60 | | |
| Impulse diode limiting voltage, V for IW3527A, IW3527K | Ulim imp- | Irev = 45 A | - | 30 | 25±10 | |
| for IW3549A, IW3549K | | | 33 | 175*** | | |
| | | | 30 | -60*** | | |
| for IW3563A, IW3563K | | | - | 52 | 25±10 | |
| | | | - | 57.2 | 175*** | |
| | | | - | 52 | -60*** | |
| | | | - | 66 | 25±10 | |
| Impulse diode forward voltage, V | | | Uforw imp** | Iforw = 100 A | - | 1.1 |
| Diode reverse current, mA for IW3527A, IW3527K | Irev. | Urev = 15 V | - | 50 | 25±10 | |
| for IW3549A, IW3549K, | | | - | 500 | 175*** | |
| | | | - | 50 | -60*** | |
| for IW3563A, IW3563K | | Urev = 30 V | - | 50 | 25±10 | |
| | | | - | 500 | 175*** | |
| | | Urev = 42 V | - | 50 | -60*** | |
| | | | - | 500 | 175*** | |
| Thermal resistance junction-case, °C/W | | Rth j-c | | - | 1 | |

* Pulse duration $t_n \leq 1$ ms, $Q \geq 1000$.
 ** Pulse duration $t_n \leq 10$ ms, $Q \geq 100$.
 *** Case temperature



IW3527A, IW3527K, IW3549A, IW3549K, IW3563A, IW3563K

Maximum ratings of diode operation within case temperature range from - 60 to +175 °C

| Parameter, unit | Symbol | Value |
|--|---------------------------|----------------|
| Maximum rectified current, A (at f = 50 Hz, T _c = 175°C) | I _{rec max} | 35 |
| Maximum junction temperature, °C | T _{j max} | 200 |
| Non-recurrent impulse forward current of rectified diode, A | I _{forw non-rec} | 400 |
| Constant diode reverse voltage, V: - for IW3527A, IW3527K - for IW3549A, IW3549K - for IW3563A, IW3563K | U _{rev} | 15 30 42 |

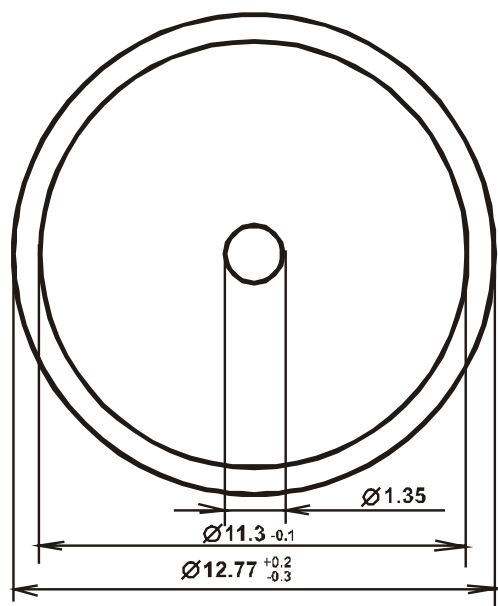
Typical values of diodes electrical parameters

| Parameter, unit | Symbol | Test conditions | Value | | | Ambient Temperature, °C |
|---|-------------------------------|---------------------------|-------|---------|------|-------------------------|
| | | | min | typical | max | |
| Break-down voltage, V for IW3527A, IW3527K for IW3549A, IW3549K for IW3563A, IW3563K | U _{br} | I _{rev} = 5 mA | 18 | 21 | 24 | 25 |
| | | | 36 | 41 | 46 | |
| | | | 50 | 55 | 60 | |
| Limiting impulse voltage, V for IW3527A, IW3527K for IW3549A, IW3549K for IW3563A, IW3563K | U _{lim imp} * | I _{rev} = 45 A | - | 27 | 30 | 25 |
| | | | - | 29.7 | 33 | 175** |
| | | | - | 27 | 30 | -60** |
| | | | - | 49 | 52 | 25 |
| | | | - | 53.9 | 57.2 | 175** |
| | | | - | 49 | 52 | -60** |
| | | | - | 63 | 66 | 25 |
| | | | - | 69.3 | 72.6 | 175** |
| Impulse forward voltage, V | U _{forw imp} *** | I _{forw} = 100 A | - | 1.0 | 1.1 | 25 |
| | | | - | - | - | - |
| Reverse current, mA for IW3527A, IW3527K for IW3549A, IW3549K for IW3563A, IW3563K | I _{rev} | U _{rev} = 15 V | - | 0.5 | 50 | 25 |
| | | | - | 100 | 500 | 175** |
| | | U _{rev} = 30 V | - | 0.3 | 50 | -60** |
| | | | - | 0.5 | 50 | 25 |
| | | U _{rev} = 42 V | - | 0.5 | 50 | 175** |
| | | | - | 0.3 | 50 | -60** |
| Temperature coefficient of forward voltage, mV/°C | α _{U_{forw}} | | - | 2.0 | - | - |
| Temperature coefficient of reverse voltage, %/°C | α _{U_{rev}} | | - | 0.09 | - | - |

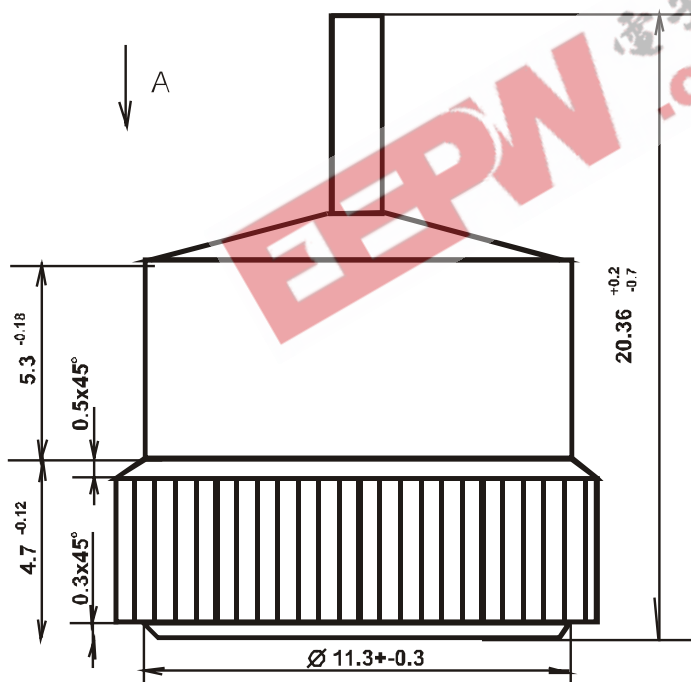
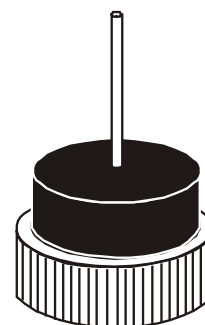
* t_{ri} ≤ 1 ms, Q ≥ 1000.
 ** Case temperature
 *** t_{ri} ≤ 10 ms, Q ≥ 100



Package KD-36 (DO-21) dimension



General view



All linear dimension are in millimeters



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