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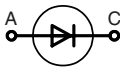
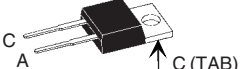
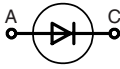
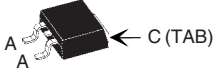
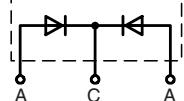
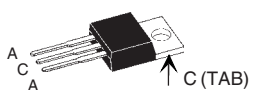
[IXYS Corporation](#)
[DGS20-018A](#)

For any questions, you can email us directly:
sales@integrated-circuit.com

| | |
|---|--|
|  | DGS 20-018A(S) DGSK 40-018A |
|---|--|

Gallium Arsenide Schottky Rectifier

$I_{FAV} = 23 \text{ A}$
 $V_{RRM} = 180 \text{ V}$
 $C_{Junction} = 33 \text{ pF}$

| Type | Marking on product | Circuit | Package |
|---------------------------------------|--------------------|--|--|
| A = Anode, C = Cathode, TAB = Cathode | | | |
| DGS 20-018A | DGS 20-018A | Single  | TO-220 AC  |
| DGS 20-018AS | DGS 20-018AS | Single  | TO-263 AB  |
| DGSK 40-018A | DGSK 40-018A | Common cathode  | TO-220 AB  |

| Symbol | Conditions | Maximum Ratings | |
|---------------|--|-----------------|------------------|
| $V_{RRM/RSM}$ | | 180 | V |
| I_{FAV} | $T_C = 25^\circ\text{C}; \text{DC}$ | 23 | A |
| I_{FAV} | $T_C = 90^\circ\text{C}; \text{DC}$ | 17 | A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}; t_p = 10 \text{ ms (50 Hz), sine}$ | 30 | A |
| T_{VJ} | | -55...+175 | $^\circ\text{C}$ |
| T_{stg} | | -55...+150 | $^\circ\text{C}$ |
| P_{tot} | $T_C = 25^\circ\text{C}$ | 48 | W |
| M_d | mounting torque (Versions A only) | 0.4...0.6 | Nm |

Features

- Low forward voltage
- Very high switching speed
- Low junction capacity of GaAs
- low reverse current peak at turn off
- Soft turn off
- Temperature independent switching behaviour
- High temperature operation capability
- Epoxy meets UL 94V-0

Applications

- MHz switched mode power supplies (SMPs)
- Small size SMPs
- High frequency converters
- Resonant converters

| Symbol | Conditions | Characteristic Values | | |
|---------------|---|-----------------------|------|-----|
| | | typ. | max. | |
| I_R ① | $V_R = V_{RRM}; T_{VJ} = 25^\circ\text{C}$ | | 2.0 | mA |
| | $V_R = V_{RRM}; T_{VJ} = 125^\circ\text{C}$ | 2.0 | | mA |
| V_F | $I_F = 7.5 \text{ A}; T_{VJ} = 125^\circ\text{C}$ | 0.8 | | V |
| | $I_F = 7.5 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | 0.8 | 1.0 | V |
| C_J | $V_R = 100 \text{ V}; T_{VJ} = 125^\circ\text{C}$ | 33 | | pF |
| R_{thJC} | | | 3.1 | K/W |
| R_{thCH} | TO-220 | 0.5 | | K/W |
| Weight | | 2 | | g |

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0 %
 Data according to IEC 60747 and per diode unless otherwise specified



DGS 20-018A(S)
DGSK 40-018A

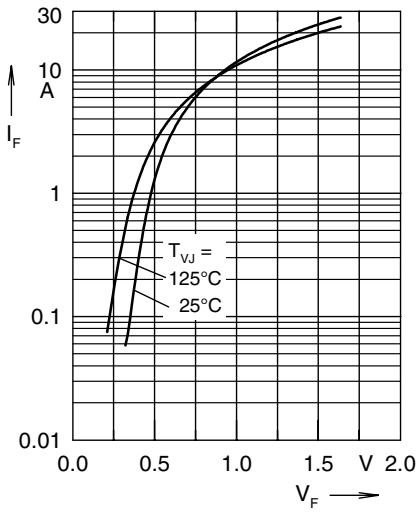


Fig. 1 typ. forward characteristics

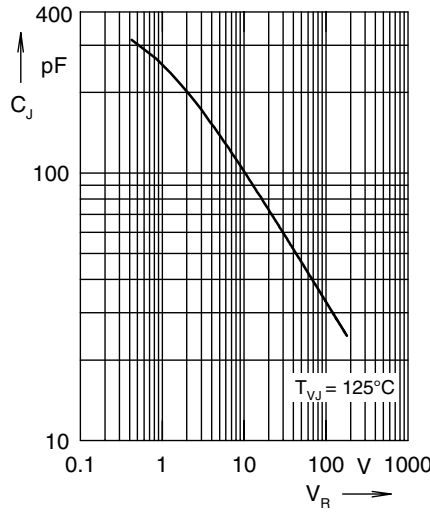
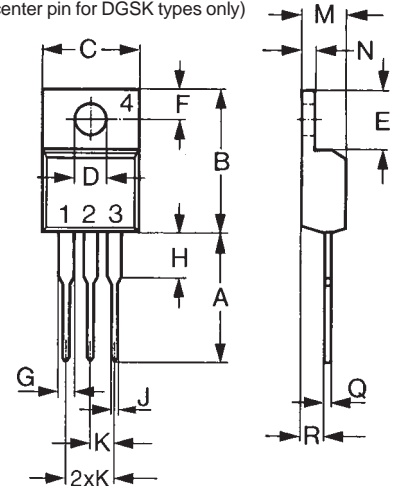


Fig. 2 typ. junction capacity versus blocking voltage

Outline TO-220

(center pin for DGSK types only)



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 12.70 | 13.97 | 0.500 | 0.550 |
| B | 14.73 | 16.00 | 0.580 | 0.630 |
| C | 9.91 | 10.66 | 0.390 | 0.420 |
| D | 3.54 | 4.08 | 0.139 | 0.161 |
| E | 5.85 | 6.85 | 0.230 | 0.270 |
| F | 2.54 | 3.18 | 0.100 | 0.125 |
| G | 1.15 | 1.65 | 0.045 | 0.065 |
| H | 2.79 | 5.84 | 0.110 | 0.230 |
| J | 0.64 | 1.01 | 0.025 | 0.040 |
| K | 2.54 | BSC | 0.100 | BSC |
| M | 4.32 | 4.82 | 0.170 | 0.190 |
| N | 1.14 | 1.39 | 0.045 | 0.055 |
| Q | 0.38 | 0.56 | 0.015 | 0.022 |
| R | 2.29 | 2.79 | 0.090 | 0.110 |

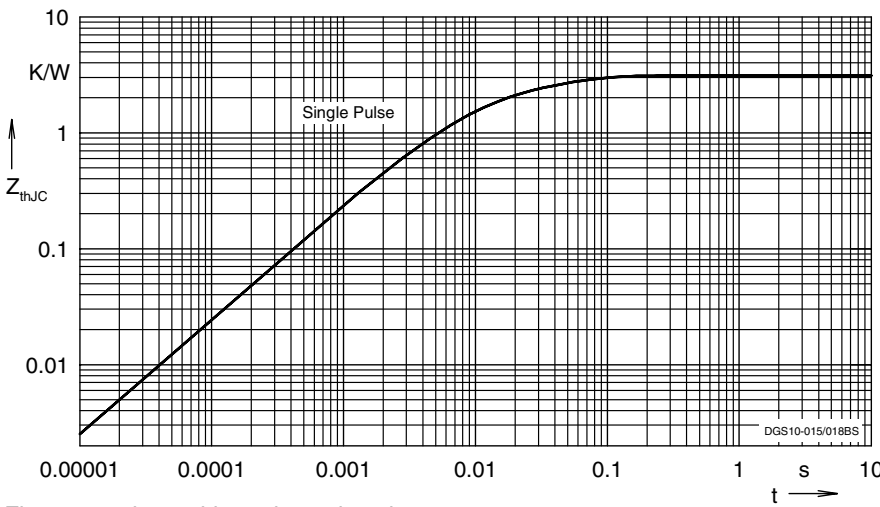
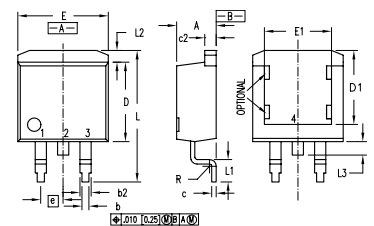


Fig. 3 typ. thermal impedance junction to case

Outline TO-263 AB



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|------|
| | Min. | Max. | Min. | Max. |
| A | 4.06 | 4.83 | .160 | .190 |
| A1 | 2.03 | 2.79 | .080 | .110 |
| b | 0.51 | 0.99 | .020 | .039 |
| b2 | 1.14 | 1.40 | .045 | .055 |
| c | 0.46 | 0.74 | .018 | .029 |
| c2 | 1.14 | 1.40 | .045 | .055 |
| D | 8.64 | 9.65 | .340 | .380 |
| D1 | 8.00 | 8.89 | .315 | .350 |
| E | 9.65 | 10.29 | .380 | .405 |
| E1 | 6.22 | 8.13 | .245 | .320 |
| e | 2.54 | BSC | .100 | BSC |
| L | 14.61 | 15.88 | .575 | .625 |
| L1 | 2.29 | 2.79 | .090 | .110 |
| L2 | 1.02 | 1.40 | .040 | .055 |
| L3 | 1.27 | 1.78 | .050 | .070 |
| L4 | 0 | 0.20 | 0 | .008 |
| R | 0.46 | 0.74 | .018 | .029 |

Note:
 explanatory comparison of the basic operational behaviour of rectifier diodes and Gallium Arsenide Schottky diodes:

| | Rectifier Diode | GaAs Schottky Diode |
|--------------------------|--|--|
| conduction | by majority + minority carriers | by majority carriers only |
| forward characteristics | $V_F(I_F)$ | $V_F(I_F)$, see Fig. 1 |
| turn off characteristics | extraction of excess carriers causes temperature dependant reverse recovery (t_{rr} , I_{RM} , Q_{rr}) | reverse current charges |
| turn on characteristics | delayed saturation leads to V_{FR} | junction capacity C_J , see Fig. 2; not temperature dependant no turn on overvoltage peak |