

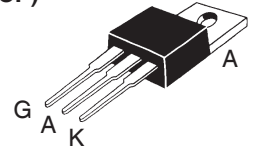
Switchable Current Regulators

IXCP 10M45S
IXCY 10M45S

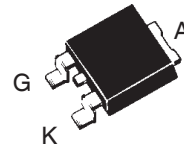
$V_{AK} = 450 \text{ V}$
 $I_{A(P)} = 2 - 100 \text{ mA}$
 $R_{DYN} = 9 - 900 \text{ k}\Omega$

| Symbol | Test Condition | Maximum Ratings | |
|-----------|--|------------------|-------------------------------|
| V_{AKR} | $T_J = 25^\circ\text{C to } 150^\circ\text{C}$ | 10M35S | 450 V |
| V_{AGR} | $T_J = 25^\circ\text{C to } 150^\circ\text{C}$ | 10M35S | 450 V |
| V_{GK} | | | $\pm 20 \text{ V}$ |
| I_D | $T_C = 25^\circ\text{C}$ | | -0.3 A |
| P_D | $T_C = 25^\circ\text{C}$ | | 40 W |
| T_J | | | -55 ... +150 $^\circ\text{C}$ |
| T_{stg} | | | -55 ... +150 $^\circ\text{C}$ |
| T_L | Temperature for Soldering (max. 10 s) | | 260 $^\circ\text{C}$ |
| M_D | Mounting torque with screw M3 (TO-220) with screw M3.5 (TO-220) | 0.45/4 0.55/5 | Nm/lb.in. Nm/lb.in. |

TO-220 AB (IXCP)



TO-252 AA (IXCY)



Pin connections

1 = G, Control terminal;
2 and 4 = A (+) Positive terminal
3 = K (-), Negative terminal

Features

- Minimum of 350/450 V breakdown
- Resistor programmable current source
- 40 W continuous dissipation
- International standard packages JEDEC TO-220 and TO-252
- On/Off switchable current source

Applications

- Start-up circuits for SMPS
- Highly stable voltage sources
- Surge limiters and voltage protection
- Instantaneously reacting resettable fuses
- Soft start-up circuits

| Symbol | Test Condition | Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified) | | |
|-----------------------------------|---|---|------|------------------|
| | | min. | typ. | max. |
| V_{AKR} | $R_K = 300 \Omega$, (Fig. 4) | 10M35S | 450 | V |
| $I_{A(P)}$ | $V_D = 10 \text{ V}$; $R_K = 300 \Omega$; (Fig. 5) | | 7 | 10 15 mA |
| $V_{G(off)}$ | $I_D = 100 \mu\text{A}$; $V_D = 400 \text{ V}$ Fig. 4 | 10M45S | -5 | V |
| I_{AV} | $V_D = 400 \text{ V}$; $V_{GK} = -10 \text{ V}$ Fig. 4 | 10M45S | | 25 μA |
| $\Delta V_{AK} / \Delta I_{A(p)}$ | Dynamic resistance; $V_D = 10 \text{ V}$ $R_K = 300 \Omega$; (Fig. 4) | | 160 | k Ω |
| R_{thJC} | Thermal Resistance junction-to-case | | | 3.1 K/W |
| R_{thJA} | Thermal Resistance junction-to-ambient | TO-220 | | 80 K/W |
| | | TO-252 | | 100 K/W |



Fig. 1 Resistor R_K in series with negative pin to achieve different current levels

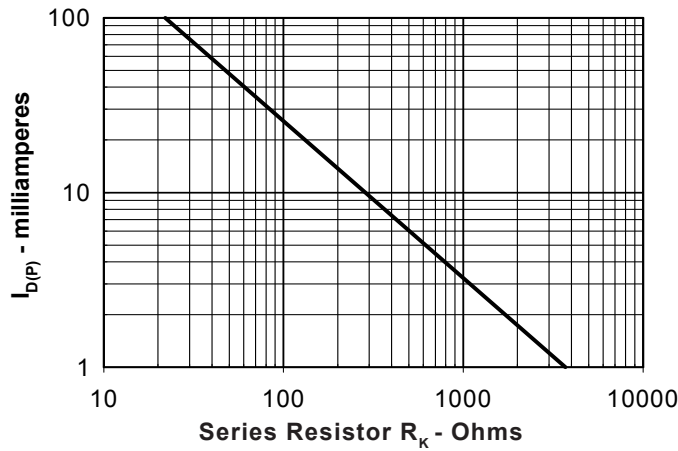


Fig. 2. Plateau current versus external resistance



Fig. 3. Current regulator controlled by V_G

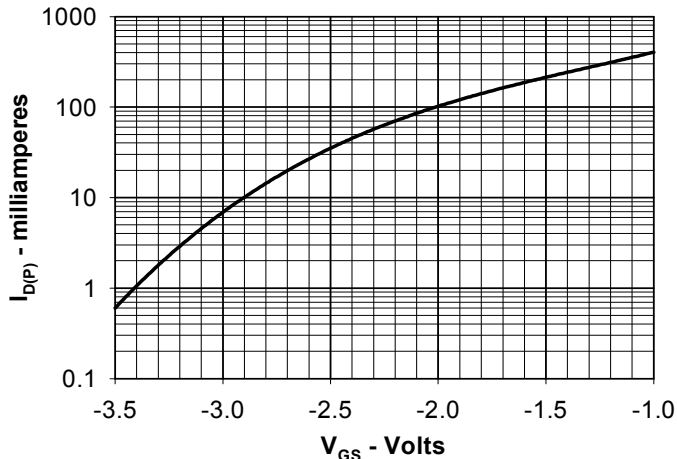


Fig. 4. Plateau current versus applied input voltage

TO-220 AB Outline



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|------|
| | Min. | Max. | Min. | Max. |
| A | 14.23 | 16.51 | .560 | .650 |
| B | 9.66 | 10.66 | .380 | .420 |
| C | 3.56 | 4.82 | .140 | .190 |
| D | 0.64 | 0.89 | .025 | .035 |
| F | 3.54 | 4.06 | .139 | .161 |
| G | 2.29 | 2.79 | .090 | .110 |
| H | - | 6.35 | - | .250 |
| J | 0.51 | 0.76 | .020 | .030 |
| K | 12.70 | 14.73 | .500 | .580 |
| L | 1.15 | 1.77 | .045 | .070 |
| N | 4.83 | 5.33 | .190 | .210 |
| Q | 2.54 | 3.42 | .100 | .135 |
| R | 2.04 | 2.49 | .080 | .115 |
| S | 0.64 | 1.39 | .025 | .055 |
| T | 5.85 | 6.85 | 2.30 | 2.70 |
| V | 1.15 | - | .045 | - |

TO-252 AA Outline



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.19 | 2.38 | 0.086 | 0.094 |
| A1 | 0.89 | 1.14 | 0.035 | 0.045 |
| A2 | 0 | 0.13 | 0 | 0.005 |
| b | 0.64 | 0.89 | 0.025 | 0.035 |
| b1 | 0.76 | 1.14 | 0.030 | 0.045 |
| b2 | 5.21 | 5.46 | 0.205 | 0.215 |
| c | 0.46 | 0.58 | 0.018 | 0.023 |
| c1 | 0.46 | 0.58 | 0.018 | 0.023 |
| D | 5.97 | 6.22 | 0.235 | 0.245 |
| D1 | 4.32 | 5.21 | 0.170 | 0.205 |
| E | 6.35 | 6.73 | 0.250 | 0.265 |
| E1 | 4.32 | 5.21 | 0.170 | 0.205 |
| e | 2.28 | BSC | 0.090 | BSC |
| e1 | 4.57 | BSC | 0.180 | BSC |
| H | 9.40 | 10.42 | 0.370 | 0.410 |
| L | 0.51 | 1.02 | 0.020 | 0.040 |
| L1 | 0.64 | 1.02 | 0.025 | 0.040 |
| L2 | 0.89 | 1.27 | 0.035 | 0.050 |
| L3 | 2.54 | 2.92 | 0.100 | 0.115 |

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

| | | | | | | | |
|-----------|-----------|-----------|-----------|--------------|--------------|--------------|-----------|
| 4,835,592 | 4,931,844 | 5,049,961 | 5,237,481 | 6,162,665 | 6,404,065 B1 | 6,683,344 | 6,727,585 |
| 4,850,072 | 5,017,508 | 5,063,307 | 5,381,025 | 6,259,123 B1 | 6,534,343 | 6,710,405 B2 | |
| 4,881,106 | 5,034,796 | 5,187,117 | 5,486,715 | 6,306,728 B1 | 6,583,505 | 6,710,463 | |