

Switchable Current Regulators

IXCP10M90S IXCY10M90S

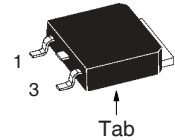
$$V_{AK} = 900V$$

$$I_{A(p)} = 1 - 100mA$$

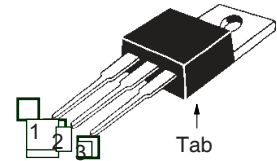
$$R_{AK(typ)} = 58k\Omega$$

| Symbol | Test Conditions | Maximum Ratings | |
|------------|-------------------------------------|-----------------|------------|
| V_{AKR} | $T_J = 25^\circ C$ to $150^\circ C$ | 900 | V |
| V_{AGR} | $T_J = 25^\circ C$ to $150^\circ C$ | 900 | V |
| V_{GKR} | | ± 20 | V |
| I_A | $T_C = 25^\circ C$ | 0.3 | A |
| P_D | $T_C = 25^\circ C$ | 40 | W |
| T_J | | - 55 ... +150 | $^\circ C$ |
| T_{JM} | | 150 | $^\circ C$ |
| T_{stg} | | - 55 ... +150 | $^\circ C$ |
| T_L | 1.6mm (0.062 in.) from Case for 10s | 300 | $^\circ C$ |
| T_{SOLD} | Plastic Body for 10s | 260 | $^\circ C$ |
| M_d | Mounting Torque (TO-220) | 1.13 / 10 | Nm/lb.in. |
| Weight | TO-252 | 0.35 | g |
| | TO-220 | 3.00 | g |

TO-252 (IXCY)



TO-220AB (IXCP)



Pin connections

1 = G, Control Terminal,
2 and Tab = A (+), Positive Terminal
3 = K (-), Negative Terminal

Features

- 40W 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
- Fast Reacting Resettable Fuses
- Soft Start-Up Circuits

| Symbol | Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified) | Characteristic Values | | |
|-----------------------------------|---|-----------------------|------|------------|
| | | Min. | Typ. | Max. |
| V_{AKR} | $R_K = 300\Omega$, (Fig. 1) | 900 | | V |
| $I_{A(p)}$ | $V_D = 10V$, $R_K = 300\Omega$, (Fig. 1) | 7 | 9 | 15 mA |
| $V_{GK(off)}$ | $I_{A(p)} = 100\mu A$, $V_D = 900V$, (Fig. 3) | - 5 | | V |
| $I_{A(p)}$ | $V_D = 720V$, $V_{GK} = -10V$ | | | 25 μA |
| $\Delta V_{AK} / \Delta I_{A(p)}$ | Dynamic Resistance, $V_D = 100V$ $V_{GK} = 0V$ | 30 | | 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 |

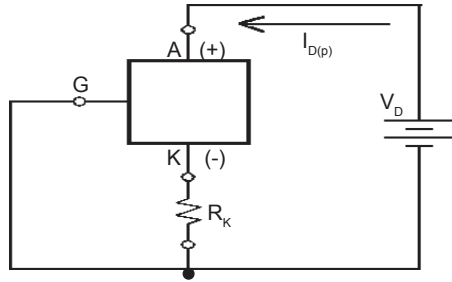


Fig. 1 Resistor R_K in Series with Negative Pin to Achieve Different Current Levels

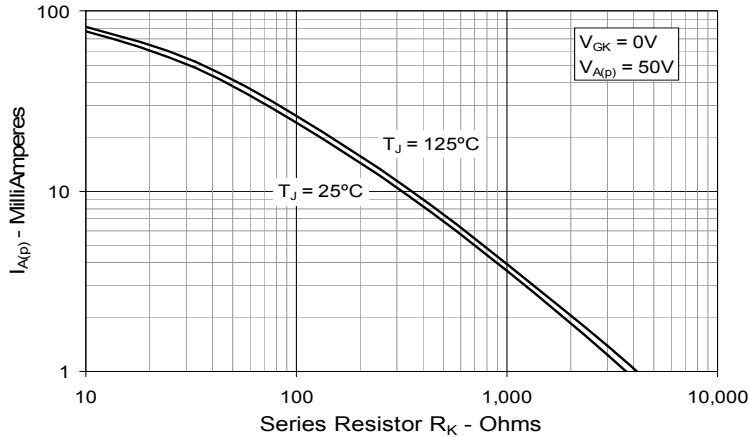


Fig. 2. Plateau Current vs. External Resistance

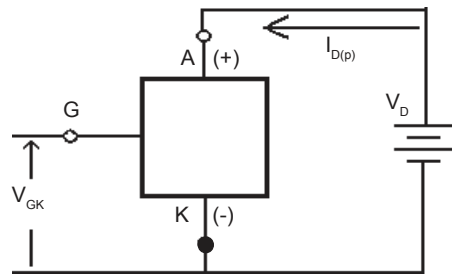


Fig. 3. Current Regulator Controlled by V_{GK}

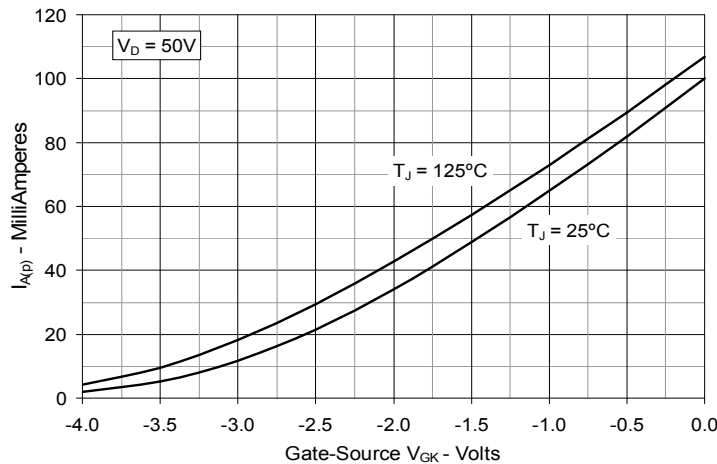
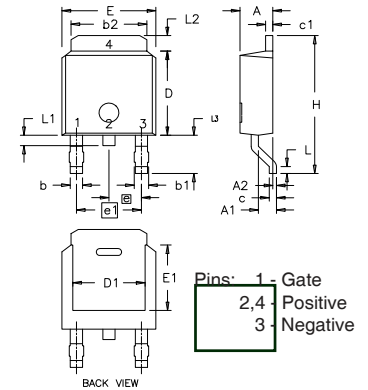


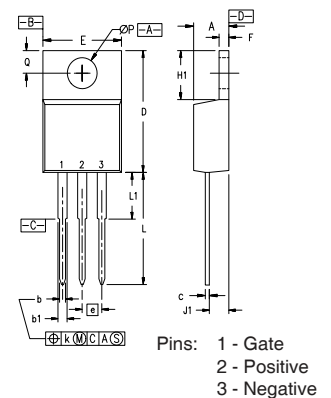
Fig. 4. Plateau Current vs. Applied Input Voltage

TO-252 AA (IXCY)



| 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 |

TO-220 (IXCP) Outline



| SYM | INCHES | | MILLIMETERS | |
|-----|----------|------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | .170 | .190 | 4.32 | 4.83 |
| b | .025 | .040 | 0.64 | 1.02 |
| b1 | .045 | .065 | 1.15 | 1.65 |
| c | .014 | .022 | 0.35 | 0.56 |
| D | .580 | .630 | 14.73 | 16.00 |
| E | .390 | .420 | 9.91 | 10.66 |
| e | .100 BSC | | 2.54 BSC | |
| F | .045 | .055 | 1.14 | 1.40 |
| H1 | .230 | .270 | 5.85 | 6.85 |
| J1 | .090 | .110 | 2.29 | 2.79 |
| k | 0 | .015 | 0 | 0.38 |
| L | .500 | .550 | 12.70 | 13.97 |
| L1 | .110 | .230 | 2.79 | 5.84 |
| ØP | .139 | .161 | 3.53 | 4.08 |
| Q | .100 | .125 | 2.54 | 3.18 |

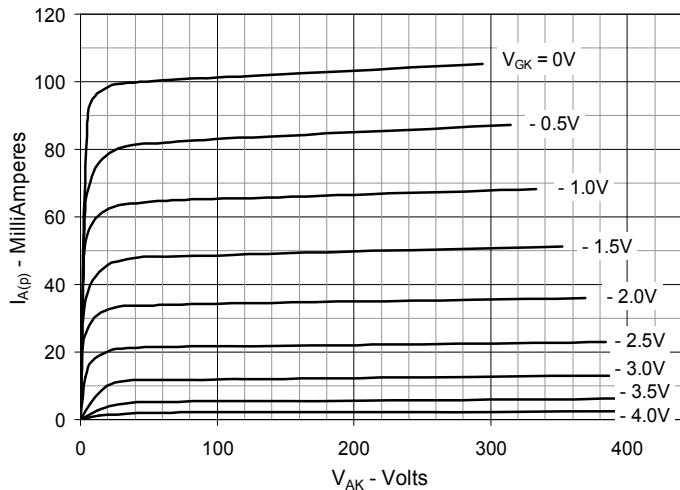


Fig. 5. Extended Output Curves @ $T_J = 25^\circ\text{C}$

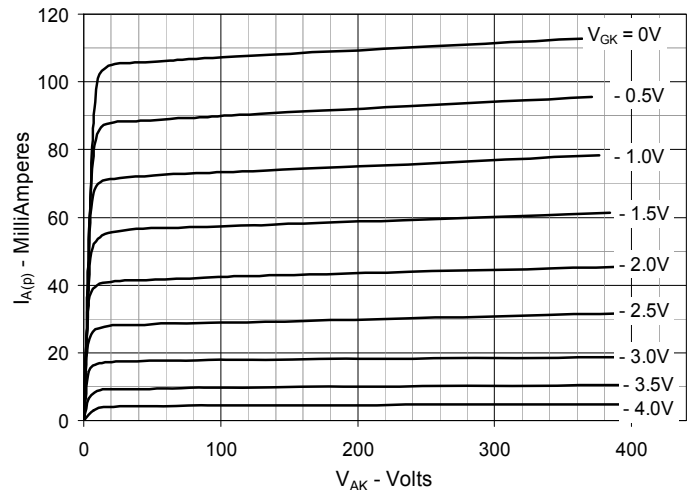


Fig. 6. Extended Output Curves @ $T_J = 125^\circ\text{C}$

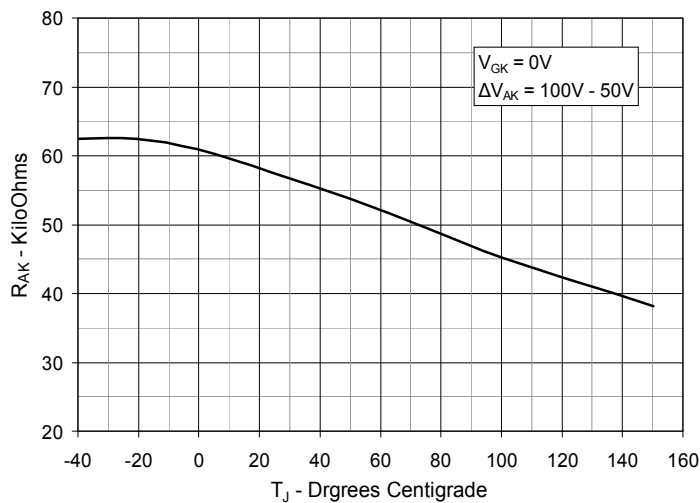


Fig. 7. Dynamic Resistance vs. Junction Temperature

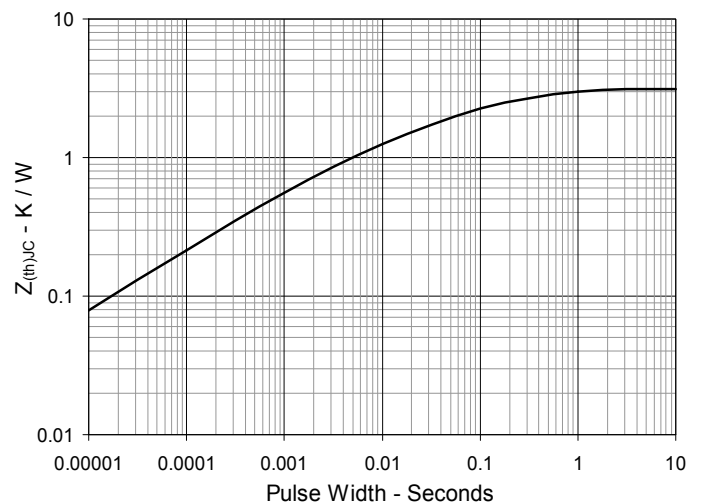


Fig. 8. Maximum Transient Thermal Resistance

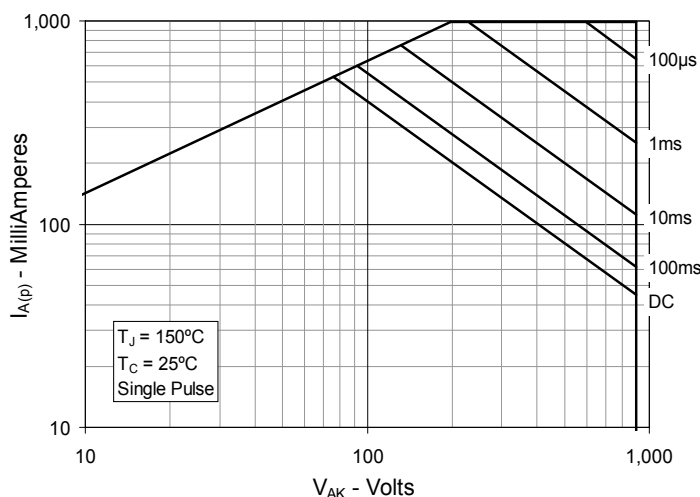


Fig. 9. Forward-Bias Safe Operating Area @ $T_C = 25^\circ\text{C}$

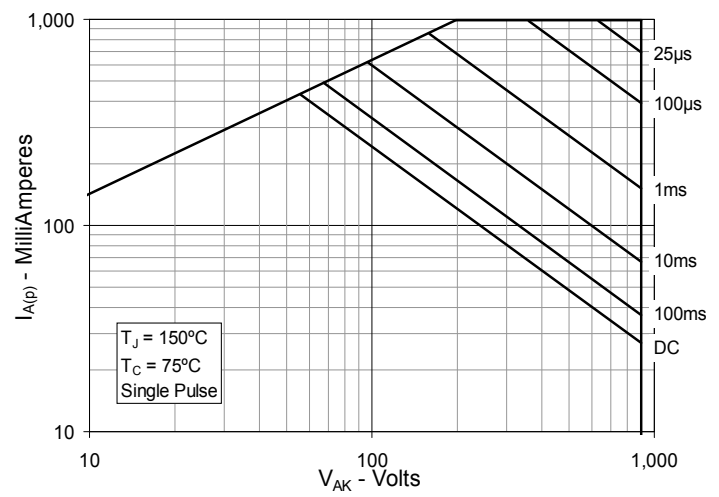


Fig. 10. Forward-Bias Safe Operating Area @ $T_C = 75^\circ\text{C}$