

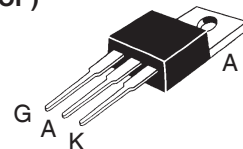
# Switchable Current Regulators

**IXCP 10M45S**  
**IXCY 10M45S**

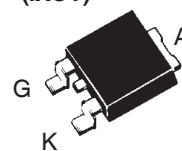
$V_{AK} = 450 \text{ V}$   
 $I_{A(P)} = 2 - 100 \text{ mA}$   
 $R_{DYN} = 9 - 900 \text{ k}\Omega$

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
$V_{GK}$			$\pm 20$ 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 $\mu\text{A}$
$\Delta V_{AK} / \Delta I_{A(P)}$	Dynamic resistance; $V_D = 10 \text{ V}$ $R_K = 300 \Omega$ ; (Fig. 4)		160	k $\Omega$
$R_{thJC}$	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

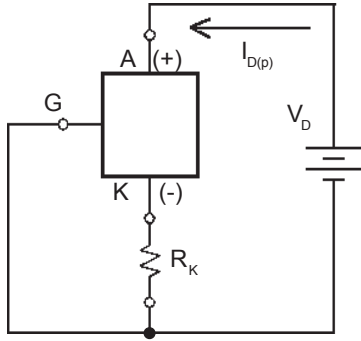


Fig. 1 Resistor  $R_K$  in series with negative pin to achieve different current levels

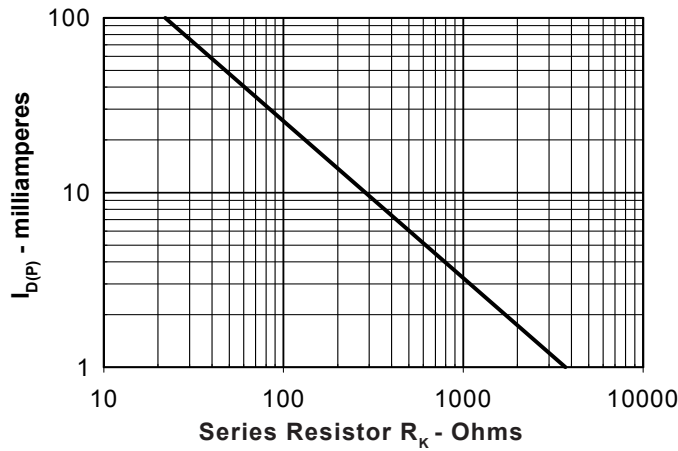


Fig. 2. Plateau current versus external resistance

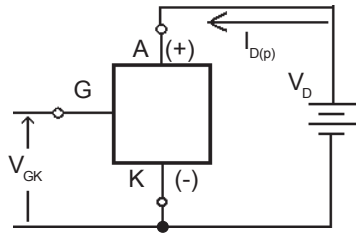


Fig. 3. Current regulator controlled by  $V_G$

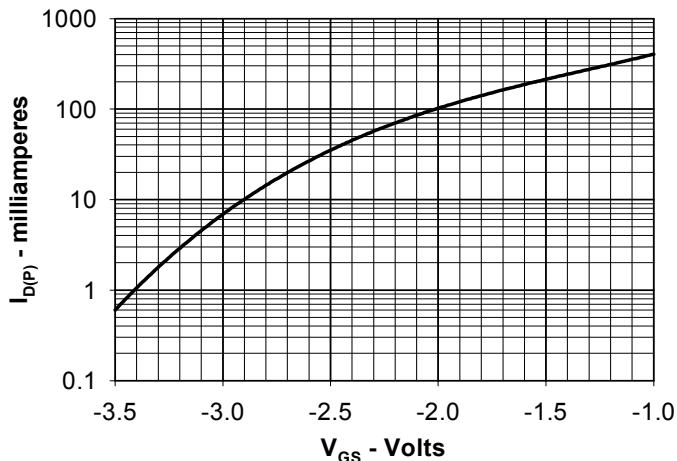
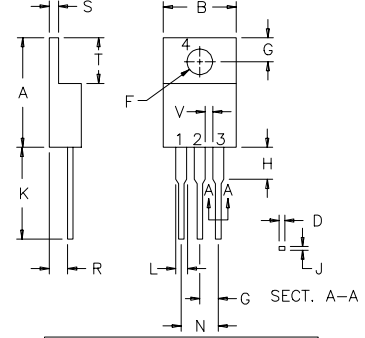


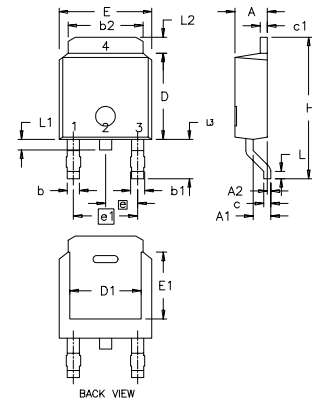
Fig. 4. Plateau current versus applied input voltage

### 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

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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	