Plug-in solid state relay
KDM 3-24

DC Motor control relay with brake function, DC 24 V
1 high side switch and 1 N-channel brake switch

Type: KDM 3-24/DC12-24V R
Solid state relay for DC-motor control
and similar applications
1 high side + 1 N channel transistor switch
All overload and short circuit protected
Adjustable or disabled brake function by
external resistor or jumper
LED status indicator
Pluggable module

Maximum load
3 A / 32 V

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Drive</th>
<th>Brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: Power MOS FET</td>
<td>High side</td>
<td>N-channel</td>
</tr>
<tr>
<td>Max. switching current</td>
<td>3 A</td>
<td>3 A, 10 sec</td>
</tr>
<tr>
<td>Max. continuous current</td>
<td>3 A (5 A) (^1)</td>
<td>2 A</td>
</tr>
<tr>
<td>Max. inrush current, 1 sec (^2)</td>
<td>20 A</td>
<td>7</td>
</tr>
<tr>
<td>Switching voltage range</td>
<td>10 – 32 V</td>
<td>10 – 32 V</td>
</tr>
<tr>
<td>Max. Load</td>
<td>100 W</td>
<td>65 W</td>
</tr>
<tr>
<td>Thermal overload protection (^2)</td>
<td>self restoring</td>
<td>self restoring</td>
</tr>
<tr>
<td>Over current limiting (^2)</td>
<td>typ. 35 A</td>
<td>7 – 14 A</td>
</tr>
<tr>
<td>Clamp voltage</td>
<td>typ. 58 V</td>
<td>60 – 70 V</td>
</tr>
<tr>
<td>Max. inductive switch-off energy (^2)</td>
<td>1 Ws single pulse</td>
<td>0.4 Ws single pulse</td>
</tr>
<tr>
<td>ON resistance @ 25 °C</td>
<td>(\leq 50 \text{ mΩ})</td>
<td>(\leq 100 \text{ mΩ})</td>
</tr>
<tr>
<td>Leakage current</td>
<td>(\leq 10 \mu A)</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Repetitive operation: When the ratio \(t_{\text{pulse}} / t_{\text{cycle}}\) is a low value then the current can be increased up to 5 A @ \(T_a \leq 50^\circ\text{C}\).
\(^2\) Not for continuous repetitive operation

Control input \(V_N = \text{DC 12-24 V}\)
Operating voltage range | 9 – 28 V
Release voltage | \(\leq 2 \text{ V}\)
Typical input current @ 12 / 24 V | 2 / 6.5 mA
Power consumption @ 12 / 24 V | 25 / 160 mW
Polarity reversal | protected

General Specifications
Ambient temperature storage/operation | -40 ... +85°C / -25 ... +60°C
ON delay | 1 ms
Release time | 1 ms
Ingress protection degree | IP 40 when the device is plugged in
Housing material | Lexan
Weight | 27 g

Standard types
DC 12-24
KDM3-24/DC12-24V R

Accessories
Socket: S7-C

Application example
Four quadrant (forward / reversed) motor control

Operating with brake resistors (on 2–3) is not recommended in this application.