



TND002

Intelligent Power Device for Use in Lamp Driver and Low-side Power Switch Applications

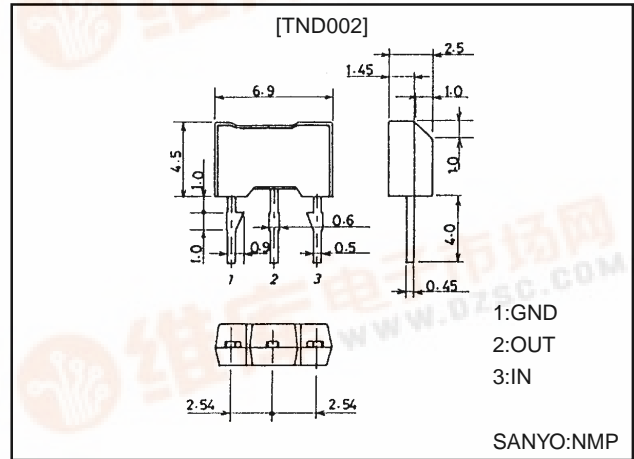
Features

- Monolithic N-channel MOSFET built in.
- Overcurrent protection built in.
- Overvoltage protection built in.
- Reset function built in.

Package Dimensions

unit:mm

2135



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS(DC)}$		40	V
Output Current	$I_O(DC)$		1.5	A
Peak Output Current	I_{OP}		5	A
Input Voltage	V_{IN}		-0.5 to +6	V
Input Current	I_{IN}		±10	mA
Allowable Power Dissipation	P_D		1	W
Operating Temperature	T_{opr}		-40 to +85	°C
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

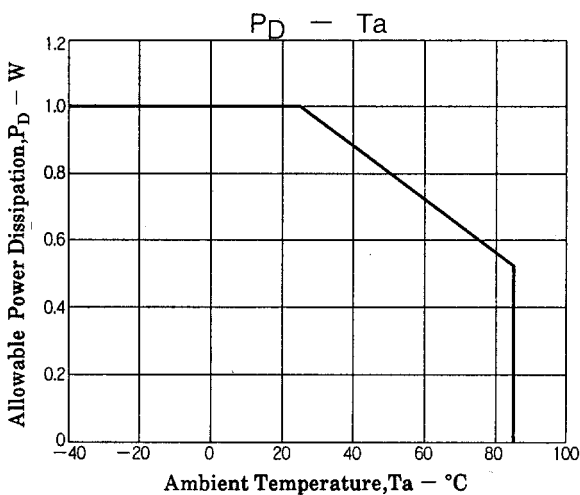
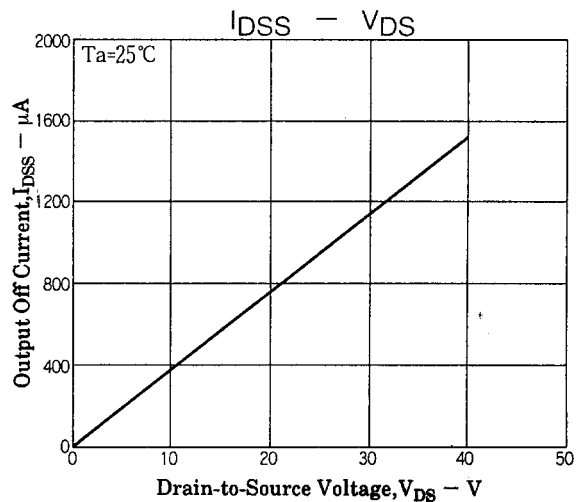
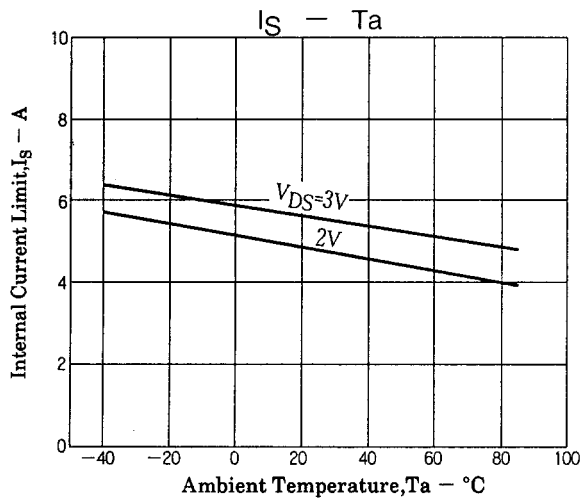
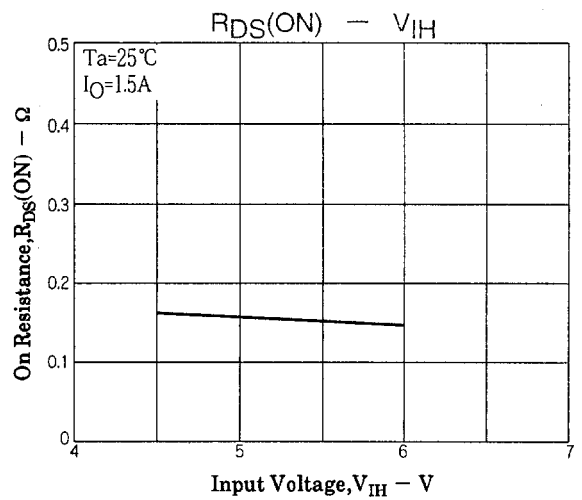
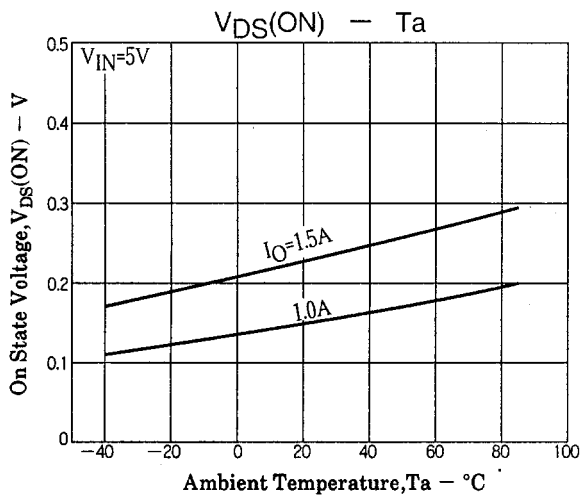
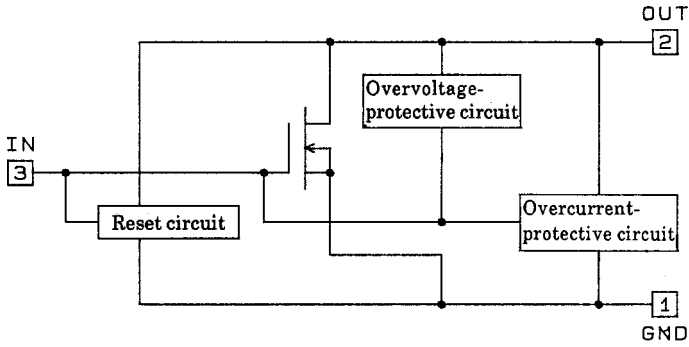
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V_{DSS}	$V_{IN}=0, I_O=3mA$	40			V
Output Off Current (1)	I_{DSS1}	$V_{IN}=0, V_{DS}=40V$			3	mA
Output Off Current (2)	I_{DSS2}	$V_{IN}=0, V_{DS}=25V$			1.5	mA
Input Voltage	V_{IH}	$V_{DD}=24V(AC), I_O=1.5A$	4.5	5	6	V
Input Voltage	V_{IL}	$V_{DD}=24V(AC), I_O=5mA$			0.8	V
On Voltage	$V_{DS(ON)}$	$V_{IN}=5V, I_O=1.5A$		0.5	0.75	V
On Resistance	$R_{DS(ON)}$	$V_{IN}=5V, I_O=1.5A$			0.5	Ω
Internal Current Limit	I_S	$V_{IN}=5V$		5		A
Input Current	I_{IN}	$V_{IN}=5V, V_{DS(ON)}\leq 1V$			1	mA
Protection Reset Voltage *	V_{RESET}	$V_{IN}=5V$		4.6		V

* : Output is turned off regardless of input when power supply voltage is higher than V_{RESET} .



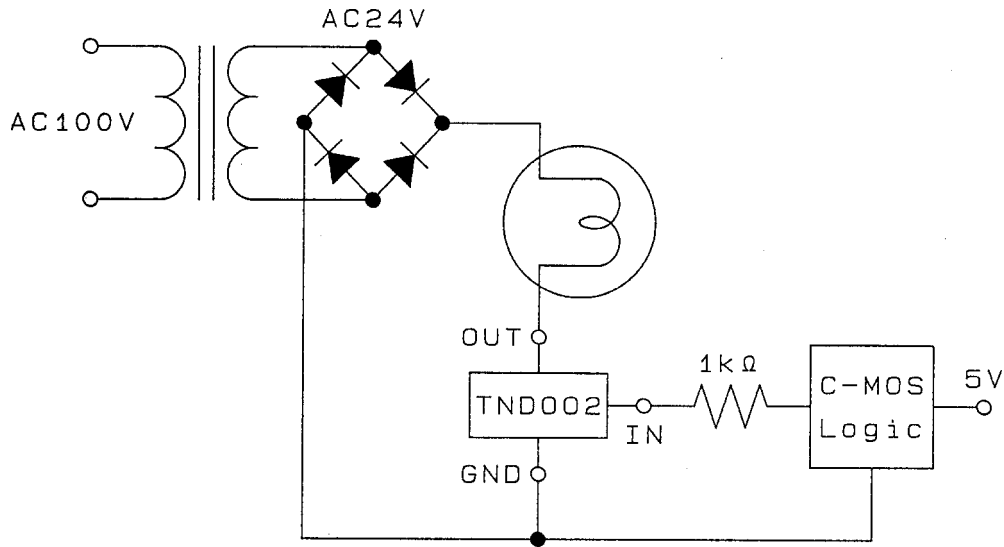
TND002

Circuit



TND002

Sample Applications Circuit



Operation

- When the input voltage exceeds 4.5V, the output power MOSFET is turned on to cause current to flow through the lamp and turn it on. At this time, if a rush current flows through the lamp, the current will be limited to about 5A by the built-in overcurrent protection circuit. When the input voltage drops below 0.8V, the output power MOSFET is turned off and the lamp is turned off.
- When the lamp load is short-circuited, output voltage becomes equal to the power supply voltage. Therefore, the reset circuit operates to turn off the output power MOSFET, protecting the power switch from destruction.

■ No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.

■ Anyone purchasing any products described or contained herein for an above-mentioned use shall:

- ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
- ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.