



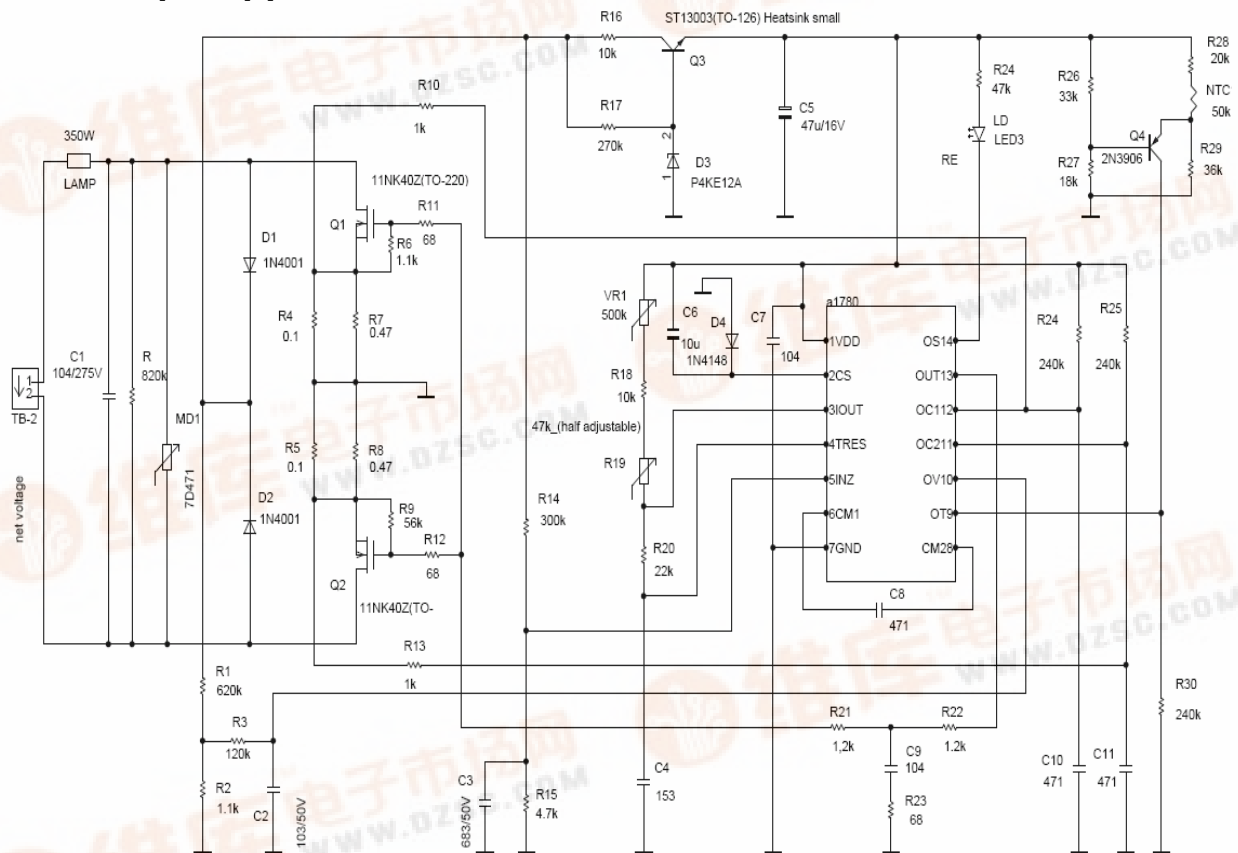
small, great solutions

a1780 general features

The a1780 is a dimmer IC for halogen lamps. It uses an integrated time controller to control a wide range of DMOS switches, and includes protection circuits against over-current, over-voltage and over-temperature. A LED gives a visual indication of the output status at all times.

- Dimming range: between 10% and 95%
Flexible soft start function (hot and cold – soft start)
Zero-crossing detection
Protection function for over-current, over-voltage and over-temperature
LED status indication for protection function
Ambient temperature range 0°C to 70°C
Package: Die-in-waffle-pack or SOP14

example application schematic

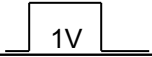


A typical application schematic for a 350W load.



## electrical characteristics

DC characteristics contain the spread of values guarantee within the specified supply voltage and temperature range and the technology process parameter range unless otherwise specified.  $T_a = 25^\circ\text{C}$  for typical values

#	Symbol	Parameter	Conditions	Min	Typ	Max	Unit
1	$I_{DDL}$	Current Consumption	$V_{OUT} = \text{Low}$ $V_{DD} = 12\text{V}$ $V_{INZ} = 1\text{V}$	-	0.8	1.0	mA
2	$I_{DDH}$	Current Consumption	$V_{OUT} = \text{High}$ $V_{DD} = 12\text{V}$ $V_{INZ} = 1\text{V}$	-	0.5	0.8	mA
3	$I_{DDL\_Error}$	Current Consumption Error-Mode	$V_{OUT} = \text{Low}$ $V_{DD} = 12\text{V}, V_{INZ} = 1\text{V}$ $V_{OT}$ 	-	1.4	1.9	mA
4	$V_{TRES}$	Threshold Voltage Input TRES	$V_{DD} = 12\text{V}$	6.5	7.5	8.5	V
5	$V_{PON}$	Threshold Voltage Power on	$V_{DD} = 12\text{V}$	8.0	9.1	9.9	V
6	$V_{TH\_OC1,2}$	Threshold Voltage OC1, 2	$V_{DD} = 12\text{V}$	0.55	0.75	0.85	V
7	$V_{TH\_OV/OT}$	Threshold Voltage OV/OT	$V_{DD} = 12\text{V}$	0.55	0.75	0.85	V
8	$V_{OUTH}$	Output Voltage High OUT	$-I_{OUT} = 6\text{mA}$ $V_{DD} = 12\text{V}$	7.5	9.2	-	V
9	$V_{OUTH}$	Output Voltage High OUT	$-I_{OUT} = 10\mu\text{A}$ $V_{DD} = 12\text{V}$	7.5	10.6	-	V
10	$V_{OUTL}$	Output Voltage Low OUT	$I_{OUT} = 6\text{mA}$ $V_{DD} = 12\text{V}$	-	0.2	0.55	V
11	$V_{OUTL}$	Output Voltage Low OUT	$I_{OUT} = 10\mu\text{A}$ $V_{DD} = 12\text{V}$	-	0.1	0.55	V
12	$V_{OSL}$	Output Voltage Low Error-Mode OS	$I_{OS} = 2\text{mA}$ $V_{DD} = 12\text{V}$	-	0.2	0.55	V

AC characteristics contain the spread of values guarantee within the specified supply voltage and temperature range and the technology process parameter range unless otherwise specified.  $T_a = 25^\circ\text{C}$  for typical values

#	Symbol	Parameter	Conditions	Min	Typ	Max	Unit
1	$t_{r\_OUT}$	Turn-on rise time <sup>1)</sup>	$C_L = 1.5\text{nF}$ $V_{DD} = 12\text{V}$	-	200	500	ns
2	$T_{f\_OUT}$	Turn-off fall time <sup>1)</sup>	$C_L = 1.5\text{nF}$ $V_{DD} = 12\text{V}$	-	200	500	ns
3	$t_{Soft\ c}$	Soft Start Time cold <sup>1)</sup>	$C_{CS} = 4.7\mu\text{F}$ , max. Full Power $PF = 0.95$ $V_{DD} = 12\text{V}$		1.9		s

<sup>1)</sup> Parameters are protected by correlation measure