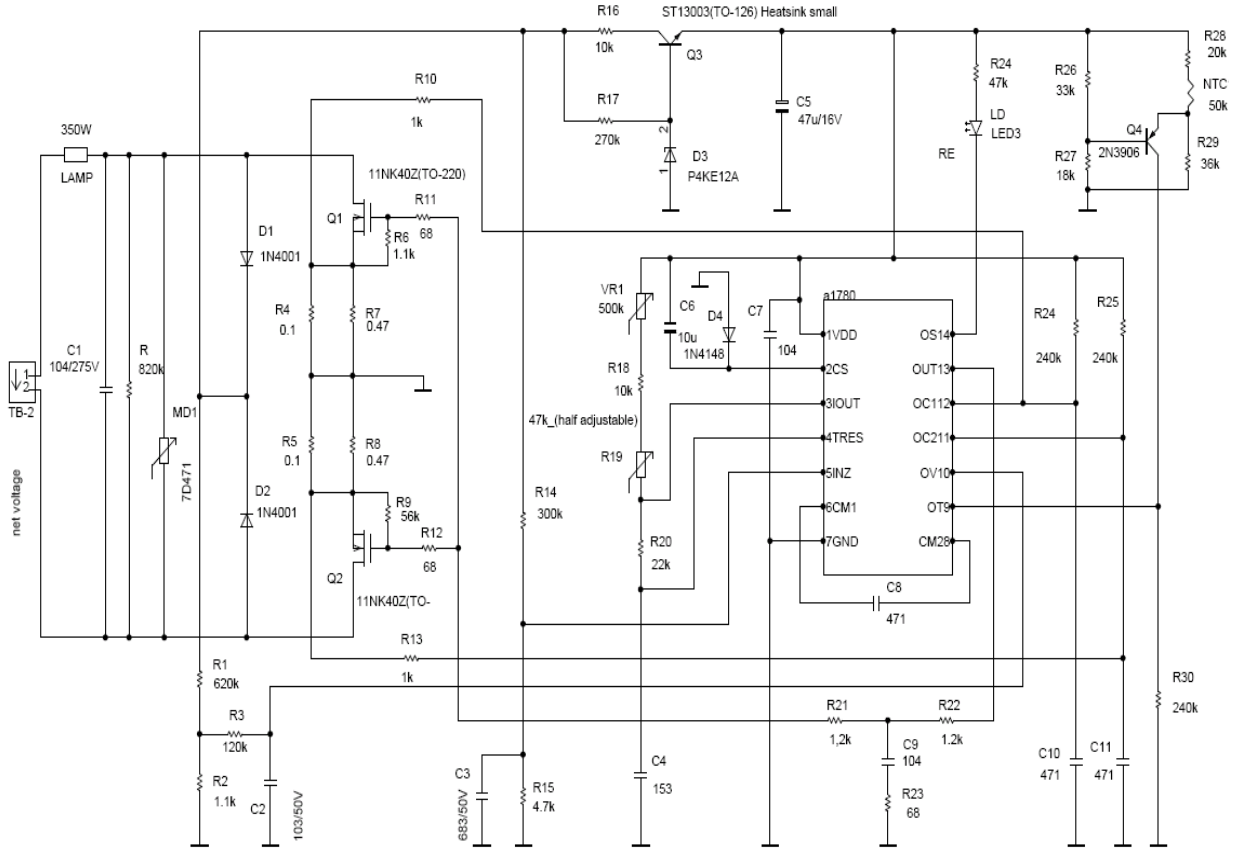
a1780 general features

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°C for typical values

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

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

[1)] Parameters are protected by correlation measure