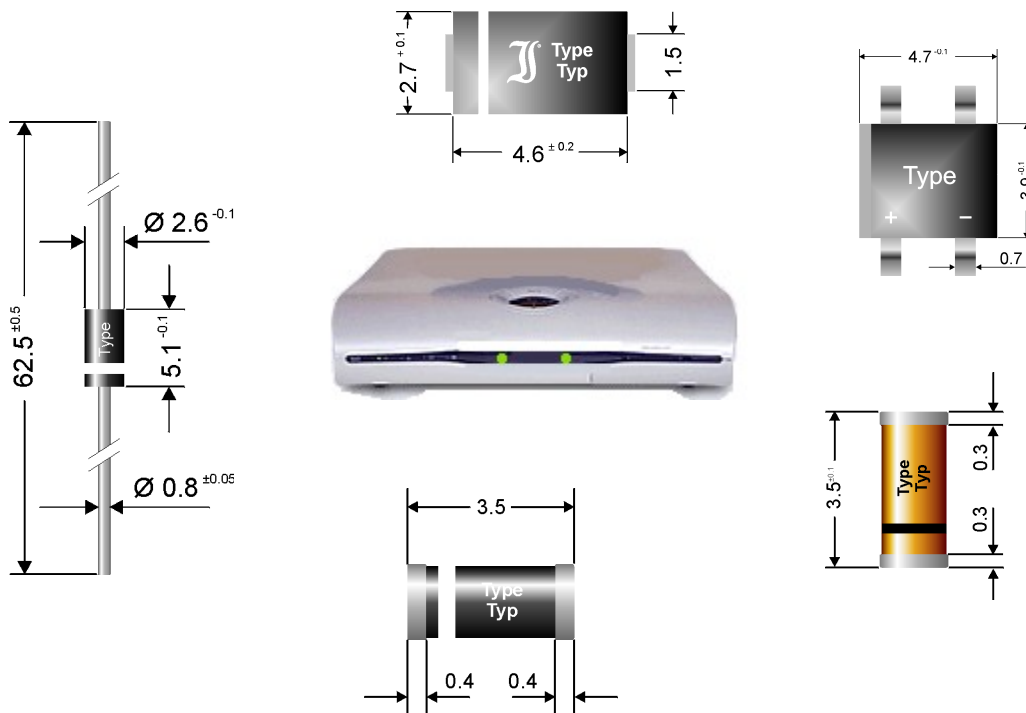


Diotec Products for Set Top Boxes

Power Supply, Control and Protection



Power Supply

Standard and Schottky Rectifiers, Bridge Rectifiers

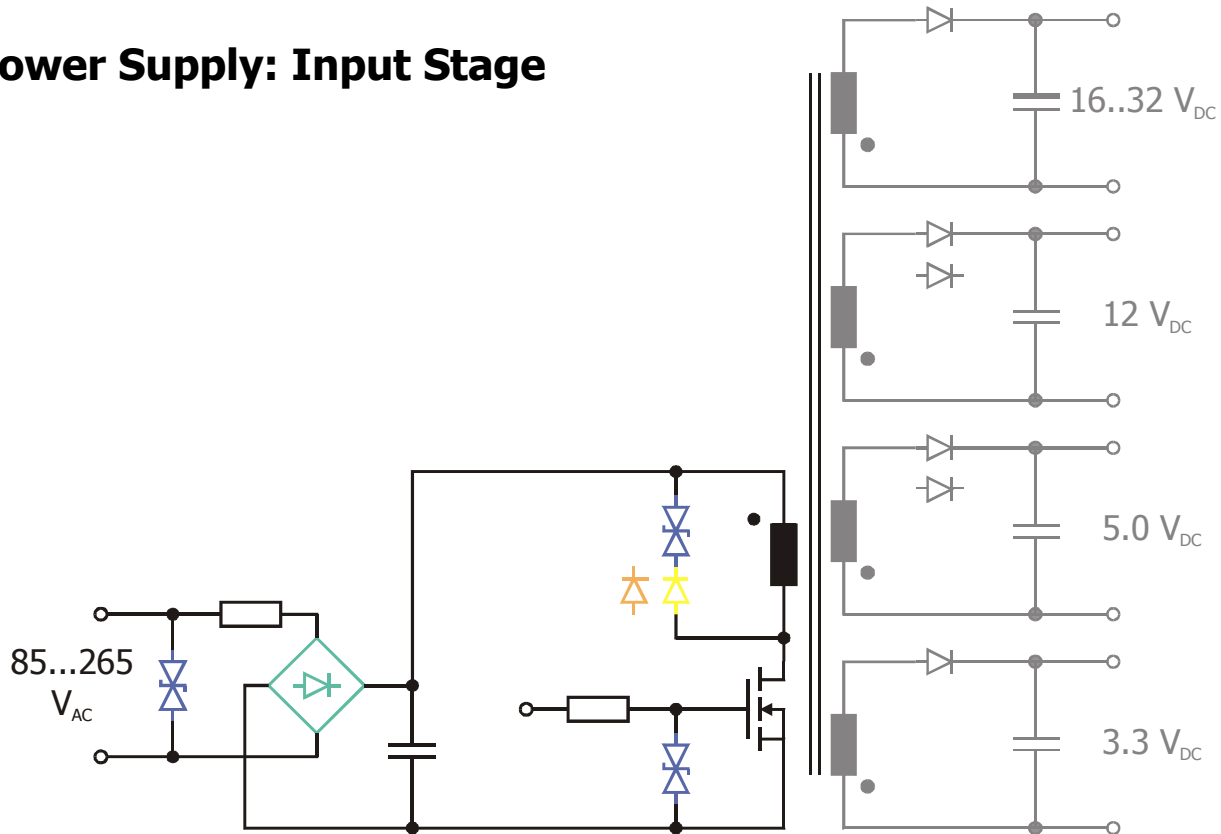
Signal Processing / Control

Zener Diodes, Small Signal Diodes and Transistors

Protection

Transient Voltage Suppressor Diodes (TVS)

Power Supply: Input Stage



Function	Axial / THT ¹⁾	SMD	Part Description
Input Protection	P4KE...Cx ²⁾ P6KE...Cx 1.5KE...Cx	TGL41-...Cx, P4SMA...Cx P6SMB...Cx 1.5SMC...Cx	400 W bidirectional TVS 600 W bidirectional TVS 1500 W bidirectional TVS
Input Bridge	4x 1N4007 B250C2300-1500, B250R B380C2300-1500, B380R B500C2300-1500, B500R	4x SM4007 MS250, S250, B250S MS380, S380, B380S MS500, S500, B500S	1 A / 1000 V Standard Recov. 0.5 to 2.0 A, 600 V Standard 0.5 to 2.0 A, 800 V Standard 0.5 to 2.0 A, 1000 V Standard
Gate Protection	P4KE...Cx	TGL-34...Cx TGL41-...Cx, P4SMA...Cx	150 W bidirectional TVS 400 W bidirectional TVS
Snubber Circuit³⁾	BA158, 1N4937 UF4005, UF4006 P4KE...x P6KE...x	FR1J US1J, US1K P4SMA...x P6SMB...x	1 A, 600 V Fast Recovery 1 A, 600 to 800 V Ultrafast 400 W TVS 600 W TVS
Telecom Interface⁴⁾	1N4004	MYS125, MS125	1.0 / 0.5 A, 400 / 250 V Std.
Auxiliary Supply⁴⁾	4x 1N4007	1x MS500, S500, B500S	0.5 to 1.0 A, 1000 V Standard

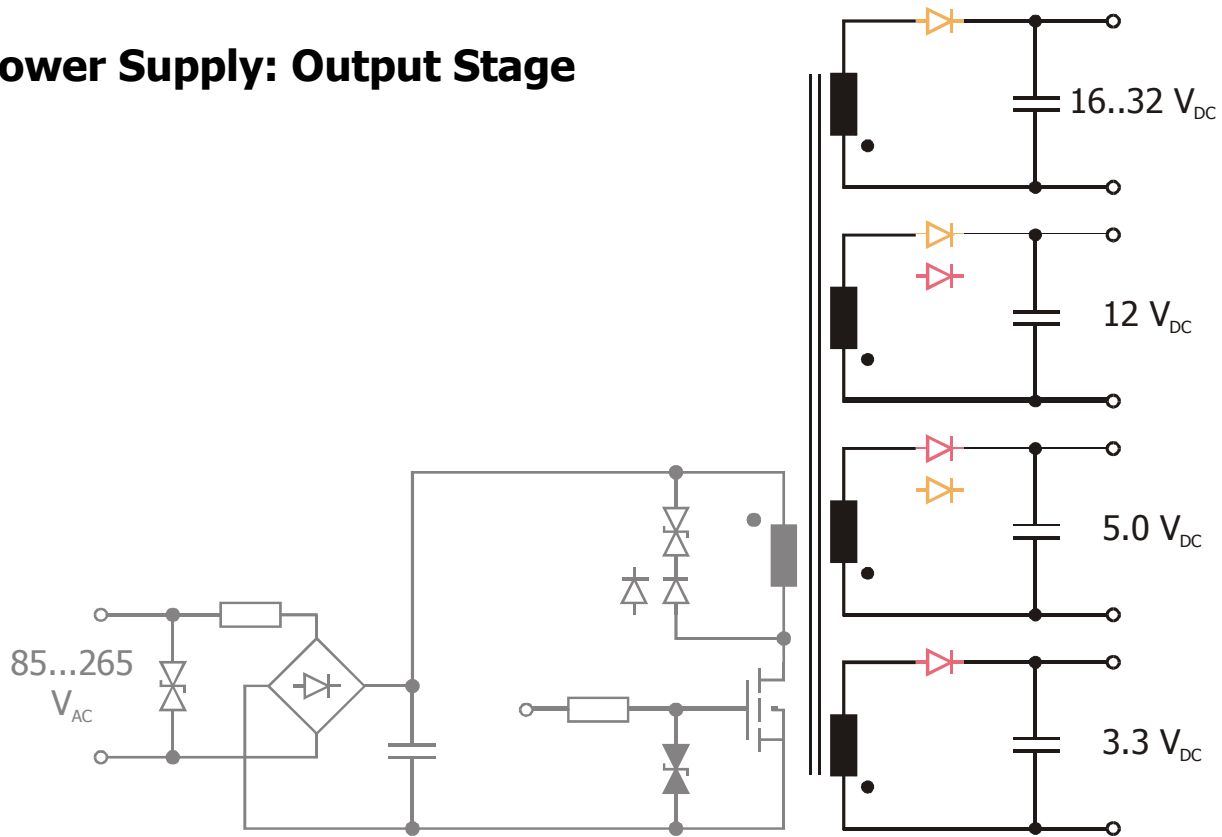
1 THT = Through Hole Technology

2 Letter x = " " denotes 10%, x = "A" 5% tolerance in breakdown voltage V_{BR} ,

3 The Snubber design is highly dependent on the primary MOSFET switch used. Some switches may not need a snubber but require a BA158/1N4937 or a 1N4007 to generate a lower start-up voltage on the primary side.

4 Not shown in the circuit

Power Supply: Output Stage



Function	Axial	SMD	Part Description
3.3 V Output¹⁾	SB230, SB330, SB530	SK23, SK33SMA, SK53	2 to 5 A, 30 V ²⁾ Schottky
	SB240, SB340, SB540	SK24, SK34SMA, SK54	2 to 5 A, 40 V Schottky
5.0 V Output¹⁾	SB340, SB540, SB840	SK34SMA, SK54, SK84	3 to 8 A, 40 V ²⁾ Schottky
	SB360, SB560, SB860	SK36SMA, SK56, SK86	3 to 8 A, 60 V Schottky
	UF5402, FE3D	US3G, ER3D	3 A, 200 V Ultrafast Recovery
	UF600D, FE6D		6 A, 200 V Ultrafast Recovery
12 V Output	SB1100, SB2100	SK1100, SK310SMA	1 to 2 A, 100 V Schottky
	UF4004, UF5404	US1G, US3G	1 to 3 A, 400 V Ultrafast Recov.
16..32 V Output	UF4004	US1G	1 A, 400 V Ultrafast Recovery
	UF5404	US3G	3 A, 400 V Ultrafast Recovery

2.5 V Output

Can be designed using an LDO, but some designers may find the voltage drop of a rectifier such as the UF4002/UF5402 a cost efficient way of deriving the 2.5V rail from the 3.3V rail.

Negative Output

DVD Players / Recorders use a negative rather than positive HV output. The UF4004 / UF5404 / US1G / US3G remain the correct rectifier for this circuit.

1 Some designs require larger currents of 2A or more. If you intend to use axial leaded diodes, special lead bending can reduce the thermal resistance, see "Customer Specific Solutions"

2 When using SMD Schottky diodes, make sure you measure the leakage current I_r under worst case conditions/temperature. If unsure, use a higher breakdown voltage to avoid thermal runaway. As such the selector guide included 60V Schottky on the 5V output and 40V on 3.3V

Signal Processing and Control

Small Signal Diodes, Schottky Diodes, Zener-Diodes, Bipolar Transistors

Axial / THT:

1N4148...1N4151; BAV18...BAV21 (150 ... 200 mA, 50 ... 200 V)

SD101, SD103 (15 ... 200 mA, 20 ... 60 V)

ZPD..., ZPY..., ZY.. (500 mW... 2W)

BC327ff, BC546ff, MPSA05/06; MPSA55/66; MPSA42/43, MPSA92/93
(200 ... 800 mA, 25 ... 300 V)

SMD:

LL4148...LL4151, BAW56, BAV70, BAV99, BAV100...BAV103 (150 ... 200 mA, 50 ... 200 V)

LL101, LL103, BAS40, BAS70 (15 ... 200 mA, 20 ... 60 V)

ZMM..., BZX84C..., ZMD..., ZMY..., SMZ.. (500 mW... 2 W)

BC807ff; MMBTA05/06, MMBTA55/56; MMBTA42/43, MMBTA92/93
(500 ... 800 mA, 25 ... 300 V)

Customer specific solutions

For assembly of axial leaded diodes the lead wires are bent in various ways. Lowest thermal resistance is achieved by bending the leads in a radial way, see picture in the middle. Diotec offers the service to supply devices with leads already bent, please contact your local Diotec Sales Office or Diotec distributor for more information.

