

Diotec Products for *Lighting*

Typical Applications:
Compact Fluorescent Lights, Lighting Ballasts



Rectification



Bridge Rectifiers,
Single Rectifiers,
High Voltage Rectifiers

Boost-Diode for PFC



Ultrafast Rectifiers

Protection



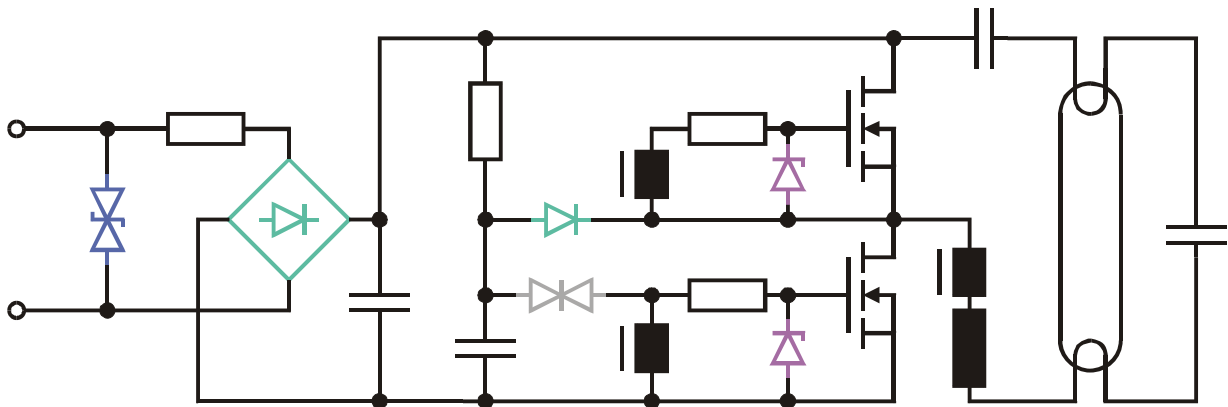
TVS-Diodes, Zener-Diodes

Control



DIAC, Standard Rectifiers

Compact Fluorescent Lights



Overvoltage Protection: TVS-Diodes/Zenerdiodes

For Gate protection of MOSFET either Zener as well as TVS diodes could be used.
 Dimensioning of TVS diodes: see Application Note "Transient Voltage Suppressors".

Types¹

TGL34-..., **TGL41-...**, **P4SMAJ-...**, **P6SMBJ-...**, **1.5SMCJ-...**; (150 to 1500 W peak; up to 550 V!)
ZMM-..., **ZMD-...**, **ZMY-...**, **SMZ1-...**, **SZ3C-...**, **Z1SMA**, **Z2SMB-...**, **Z3SMC-...**; (0.5 to 3 W steady)

Input Rectification: Bridge Rectifiers

Available as complete device but can also be formed by four single devices (see below).
 Recommended values for protective resistor R_t and load capacitor C_L are given within the datasheet.
 R_t includes also series resistance of input circuit, an additional device is therefore often not necessary.

Types¹

SMD: **MYS40...380**, **MS40...500**, **S40...500**, **B40...500S**, **B40...380FS** (Fast recovery)
 trough hole: **B40...500D**, **B40...380FD** (Fast recovery), **B40...500R** (round)
 (0.5 to 2 A)

Discharge Diode: Single Rectifiers

Types¹

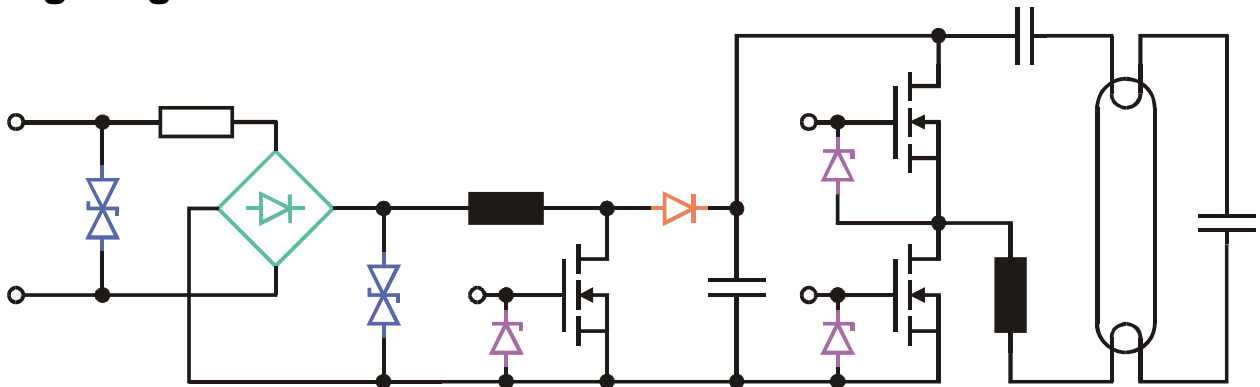
GL34 A..M, **GL1 A..M**, **SM4001...7**, **SM5059...63**, **SM5400...08**, **S1 A..M**, **S2 A..M**, **S3 A..M**;
 (0.5 to 3 A, standard recovery). **Fast** to **Ultrafast** versions available as well.

Startup: DIAC

SMD: **BR100-03 LLD** (V_{BO} 28..36 V), **BR100-031 LLD** (30..34 V), **BR100-04 LLD** (35..45 V)
 Axial: **BR100-03** (V_{BO} 28..36 V), **BR100-031** (30..34 V), **BR100-04** (35..45 V), **DB3**, **DB4**

¹ Preferred types are **bold**; colours according to Diotec Selection Guide. Datasheets see www.diotec.com, "Products". Though devices mentioned here are mostly SMD types for space and weight saving there are also equivalent leaded versions available.

Lighting Ballast



Overvoltage Protection: TVS-Diodes/Zenerdiodes

For Gate protection of MOSFET either Zener as well as TVS diodes could be used. Dimensioning of TVS diodes: see Application Note "Transient Voltage Suppressors".

Types¹

SMD:

TGL34-..., **TGL41...**, **P4SMAJ...**, **P6SMBJ...**, **1.5SMCJ...**; (150 to 1500 W peak; up to 550 V!)

ZMM..., **ZMD...**, **ZMY...**, **SMZ1...**, **SZ3C...**, **Z1SMA**, **Z2SMB...**, **Z3SMC...**; (0.5 to 3 W steady)

Leaded: **BZW04-...**, **P4KE...**, **BZW06-...**, **P6KE...**, **1.5KE...**, **5KP...**; (400 to 5000 W)

ZPY..., **ZY...**, **3EZ...**, **BZV58C...**, **1N53..B**; (1.3 to 5 W)

Input Rectification: Bridge Rectifiers

Available as complete device but can also be formed by four single devices. Recommended values for protective resistor R_i and load capacitor C_L are given within the datasheet. R_i includes also series resistance of input circuit, an additional device is therefore often not necessary.

Types¹

0.5 to 2 A:

SMD: **MYS40...250**, **MS40...500**, **S40...500**, **B40...500S**, **B40...380FS** (Fast recovery)

through hole: **B40...500D**, **B40...380FD** (Fast recovery), **B40...500R** (round)

1.5 to 12 A:

Single In-line: **B..C1500**, **B..C2300-1500**; **B..C3200-2200** to **B..C7000-4000**; **GBS4 A..M**, **GBU4 A..M** to **GBU12 A..M**

Ultrafast Diodes for PFC stage

Operation frequencies are normally high, for reduction of power losses in the switch (affected highly by reverse recovery behaviour of the diode!) the boost diode must be ultrafast. At 230 V_{RMS} mains a 600 V type should be used, at 110 V_{RMS} a 400 V type is sufficient.

Types¹

Leaded: **UF4004**, **UF4005**, **UF5404**, **UF5406**, **UF600J**; (1 to 6 A)

¹ Preferred types are **bold**; colours according to Diotec Selection Guide. Datasheets see www.diotec.com, "Products".

SMD: **SUF4004**, **SUF4005**, US1J, US1G, US2J, US2G, US3G, US3J; (1 to 3 A)

High Voltage Diodes

Types¹

SMD:

SM513...SM2000 (1A Standard); **SA261...SA265** (2A Fast) (1300...2000 V);

Leaded:

EM513...EM518 (1A Standard); **BY255...BY2000** (3A Standard) (1300...2000 V);

HV1.5, HV2 (500 mA, 1.5 to 2 kV Fast); **HV3, HV5** (200 mA, 3 to 5 kV Fast)

DD300 ... DD1800 (20 mA, 3kV to 18 kV Fast)

¹ Preferred types are **bold**; colours according to Diotec Selection Guide. Datasheets see www.diotec.com, "Products".