



New Product Announcement Trench SBR

Trench SBR Exceeds Charger Requirements

The first devices to be launched from Diodes Incorporated's proprietary Trench SBR® (Super Barrier Rectifier) process are enabling the stringent efficiency and temperature targets of next generation chargers to be achieved.

With their ultra low forward voltage, low leakage current and cooler running characteristics, the new Trench SBRs meet the requirements of the charger output rectifier diode, easily coping with the shorter current pulses of 36kHz discontinuous conduction mode charger designs.

Diodes Incorporated has introduced a range of devices for Adaptor applications. For example the 15A SBRT15U50SP5, is targeted at 10W smartphone chargers and the 20A SBRT20U50SLP is for 12.5W tablet chargers. Such chargers are becoming smaller and thinner, and have efficiency and temperature targets which cannot be adequately met with traditional Schottky diode solutions.

Forward voltages for the SBRT15 and SBRT20 parts of 0.47V at 10A and 0.5V at 20A respectively, and an operating temperature of 90°C, means conduction losses are minimized and charger efficiency increased. The devices' low reverse leakage currents at high temperatures, respectively 105mA and 100mA at 125°C, also help minimize blocking mode losses.

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The Diodes Advantage

- **Ultra Low Forward Voltage (V_F)**
Ultra low forward voltage minimizes conduction losses reducing power dissipation
- **Low Reverse Leakage (I_R)**
Ultra Low leakage at high temperature minimises reverse losses and extends battery life
- **Thermally efficient package**
Low junction to ambient thermal resistance (R_{thJA}) of 12°C/W for the SBRT20U50SLP and 20°C/W for the PowerDI5
- **Small Form Factor Package**
The PowerDI5 and PowerDI5060 packages have off board profiles of <1.1mm enabling thinner solutions.
The PowerDI5 and PowerDI5060 packages occupy just 40% of the PCB area taken by that of the industry standard DPak (TO252) package

Circuit Function

- Output Rectification

Target Markets

- >10W AC/DC Chargers



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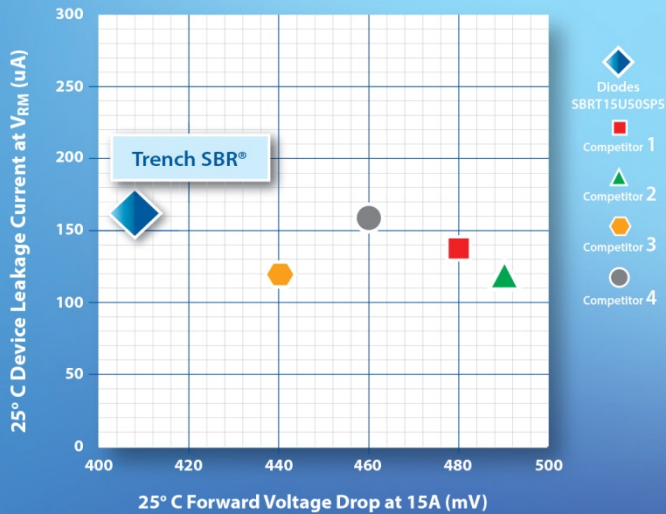
Trench SBR

Cross Reference

Trench SBR	Charger (Phone/Pad)	Cross Reference
SBRT3U45SA	3W/5W	VS-3EJH01HM3, V3PAL45HM3, VSSAF3N50, TSSA3U45
SBRT3M40SA		
SBRT3U45SAF		
SBRT5A50SA	5W	VSSAF5N50
SBRT5A50SAF		
SBRT10M50SP5	7W/8W	TSP10U45S, TSP10U60S, TSBP10U45S, P10V45SP
SBRT10U50SP5		
SBRT15M50SP5	10W	V15P6HM3, TSP15U50S
SBRT15U50SP5		
SBRT15M50AP5		
SBRT20U50SLP	12W	V20PL50M3
SBRT25U50SLP		
SBRT25M50SLP		
SBRT20U60SP5		
SBRT20M60SP5	QC(5V/2.1A, 9V/1.7A)	V20PL60M3, V25PL60M3, TSP20U60S
SBRT20M60SLP		
SBRT25M60SLP		
SBRT25U60SLP		
SBRT25U80SLP		
SBRT25U80SLP		

Performance Comparison

Industry Leading Forward Voltage (V_F)



Industry Leading Reverse (I_{RR}) Leakage at High Temperature

