



New Product Announcement

Trench Schottky Diodes

SDT Series – New Generation of Schottky Diodes with Excellent Performance-to-Cost Value

Diodes Incorporated announces the introduction of the SDT series of Schottky diodes manufactured on the deep trench process. In comparison to the Schottky diodes manufactured on the planar process, this new series of devices achieves much lower forward voltage (V_F) and reverse leakage current (I_R). The difference can be very substantial. More than 20% in the case of the SDT20B100CT, hence an excellent performance-to-cost value is presented.

The initial release comprises of twenty-nine Schottky diodes, offering forward voltage (V_F) as low as 0.62V, leakage current (I_R) as little as 3.5 μ A, peak repetitive reverse voltage (V_{RRM}) ranging from 100V to 120V, and maximum average rectified current from 5A to 40A. These devices are good as blocking diodes in the battery charging sub-system of a notebook PC, as rectifying diodes on the secondary-side of an AC-DC charger/adaptor, as free-wheeling diodes on the low-side of a high-voltage synchronous DC-DC down converter, or as flyback diode in AC-LED lighting, etc.

Housed in the thermally efficient and fully green PowerDI®5*, TO220AB, and ITO220AB packages, these devices are well suited to either the fully automated or the labor intensive manufacturing environment.

* PowerDI is a registered trademark of Diodes Incorporated



The Diodes Advantage

■ Excellent Thermal Transfer Properties

The PowerDI5, TO220AB, and ITO220AB packages, are both highly thermal-efficient and RoHS compliant, allowing these devices to operate reliably in demanding applications and are well-suited to large-scale manufacturing facilities.

■ Low Forward Voltage

Developed on the trench technology, these devices offer much lower forward voltage (V_F) than the planar-type Schottky diodes. The lower V_F leads to better power efficiency at equal or better parity to the device cost.

■ Low Reverse Leakage Current

The leakage current (I_R) of these devices is as little as 3.5 μ A. This excellent performance translates to smaller form-factor for the end-system.

■ High Forward Surge Current

With forward surge current (I_{FSM}) as high as 280A and a reverse breakdown voltage (V_{RRM}) as much as 120V, a high degree of device reliability and end-system robustness are ensured.

Circuit Functions

- Rectification
- Reverse Polarity Protection
- Free-wheeling Diode
- Blocking Diode
- Boost-strap Diode

Target Markets

- AC-DC Charger & Adapter
- Home Electronics
- IoT (Internet-of-Things) Equipment
- Mobile Computing & Communications



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Product Portfolio

Product Number	Qualified to AECQ101 / PPAP Capable	Configuration	Max. Average Rectified Current I_O (A)	Peak Repetitive Reverse Voltage V_{RRM} (V)	Peak Forward Surge Current I_{FSM} (A)	Forward Voltage Drop V_F (V)	Max Reverse Current I_R (μ A)	Package
SDT5H100LP5	No	Single	5	100	150	0.66	3.5	PowerDI [®] 5
SDT5H100P5	No	Single	5	100	150	0.62	100	PowerDI [®] 5
SDT8A100P5	No	Single	8	100	150	0.7	100	PowerDI [®] 6
SDT10A100CT/CTFP	No	Dual	10	100	150	0.66	50	VTO220AB
SDT20100CT	No	Dual	20	100	150	0.71	80	TO220AB
SDT20A100CT	No	Dual	20	100	200	0.67	100	TO220AB
SDT20B100CT	No	Dual	20	100	150	0.8	100	TO220AB
SDT20120CT/CTFP	No	Dual	20	120	120	0.88	80	VTO220AB
SDT20120VCT	No	Dual	20	120	120	0.86	120	TO220AB
SDT20A120CT	No	Dual	20	120	150	0.79	120	TO220AB
SDT30100CT/CTFP	No	Dual	30	100	200	0.75	100	TO220AB
SDT30100VCT	No	Dual	30	100	200	0.72	100	TO220AB
SDT30A100CT/CTFP	No	Dual	30	100	200	0.73	100	VTO220AB
SDT30120CT/CTFP	No	Dual	30	120	150	0.93	100	VTO220AB
SDT30A120CT	No	Dual	30	120	180	0.86	100	TO220AB
SDT40100CT/CTFP	No	Dual	40	100	200	0.79	100	VTO220AB
SDT40A100CT/CTFP	No	Dual	40	100	250	0.72	120	VTO220AB
SDT40A100VCT	No	Dual	40	100	250	0.68	180	TO220AB
SDT40H100CT/CTFP	No	Dual	40	100	280	0.7	120	VTO220AB
SDT40120CT	No	Dual	40	120	180	0.95	100	TO220AB
SDT40A120CT	No	Dual	40	120	250	0.88	120	TO220AB
SDT40H120CT	No	Dual	40	120	280	0.82	120	TO220AB

Product Number	Package	Cross References
SDT5H100LP5	PowerDI [®] 5	Vishay SS5P10
SDT5H100P5	PowerDI [®] 5	TSC TSPB5H100S
SDT8A100P5	PowerDI [®] 6	Vishay V8PM10
SDT10A100CT	TO220AB	TSC TST10H100CW
SDT10A100CTFP	ITO220AB	TSC TSF10H100C
SDT20100CT	TO220AB	Vishay V20100C, Lite-ON G20100CTW, PFC PTR20L100CT
SDT20A100CT	TO220AB	Vishay V30100C
SDT20B100CT	TO220AB	PanJit SBT20100CT
SDT20120CT	TO220AB	Vishay V20M12M, Lite-ON G20120CTW
SDT20120CTFP	ITO220AB	-
SDT20120VCT	TO220AB	PanJit SBT20120LCT
SDT20A120CT	TO220AB	Vishay V30120C
SDT30100CT	TO220AB	Vishay V30M100M, Lite-ON G30100CTW
SDT30100CTFP	ITO220AB	Vishay VF30100S
SDT30100VCT	TO220AB	Vishay V30100C, PanJit SBT30100VCT

Product Number	Package	Cross References
SDT30A100CT	TO220AB	TSC TST30H100CTW
SDT30A100CTFP	ITO220AB	TSC TSF30H100CTW
SDT30120CT	TO220AB	Vishay V30M120M, Lite-ON G30120CTW
SDT30120CTFP	ITO220AB	-
SDT30A120CT	TO220AB	PanJit SBT30120LCT
SDT40100CT	TO220AB	PanJit SBT40100VCT
SDT40100CTFP	ITO220AB	PanJit SBT40100VFCT
SDT40A100CT	TO220AB	Vishay V40100C, Lite-ON G40100CTW
SDT40A100CTFP	ITO220AB	Vishay VF40100C
SDT40A100VCT	TO220AB	PanJit SBT40100UCT
SDT40H100CT	TO220AB	Vishay V40100
SDT40H100CTFP	ITO220AB	-
SDT40120CT	TO220AB	-
SDT40A120CT	TO220AB	Vishay V40120C, Lite-ON G40120CTW
SDT40H120CT	TO220AB	-

PowerDI[®]5 Package



- High power-density package
- Small footprint of $\approx 6.5\text{mm} \times 4.0\text{mm}$
- Low-profile height at $\approx 1.1\text{mm}$

TO220AB Package



- Industry-standard package
- Footprint of $\approx 15.4\text{mm} \times 10.2\text{mm}$
- Height at $\approx 4.2\text{mm}$

ITO220AB Package



- Industry standard package
- Footprint of $\approx 15.9\text{mm} \times 10.1\text{mm}$
- Height at $\approx 4.7\text{mm}$