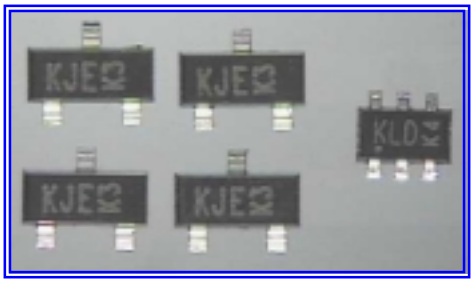
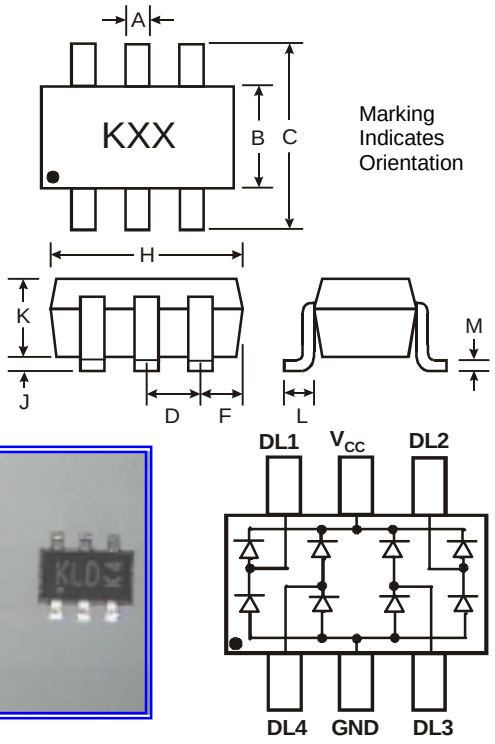
New Product Announcement
August 2001

Introducing Our New Compact 4-line Array Schottky Bus Terminator for High-Speed Data Systems: QSBT40 !





SOT-363		
Dim	**Min**	**Max**
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.80	2.20
H	1.80	2.20
J	--	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
All Dimensions in mm		

Key Features

- Diodes Inc's unique ASMCC (Application Specific Multi-Chip Component) high density implementation.
- Four data line terminators in one SOT-363 surface mount package.
- Rugged discrete Schottky die construction for high surge capability.
- Eight diodes arranged as four series-connected pairs.
- Low Schottky forward voltage, far superior to switching diode (BAV99) approaches.
- Low capacitance for high speed interfaces.
- Provides transient protection for high-speed data lines in accordance with: IEC 1000-4-2 (ESD), IEC 1000-4-4 (EFT), and IEC 1000-4-5 (Lightning)

Availability

- **Samples Now In Stock**
- **Production Quantity Lead Time:** Stock 6 weeks
- **Data Sheet at:** www.diodes.com

For more information, contact the Sales Department at
Diodes Incorporated Tel (805) 446-4800 / Fax (805) 446-4850 **www.diodes.com**

Desirable Benefits

- Effectively terminates data lines avoiding complex impedance matching.
- Termination remains effective after changing data line configuration.
- Overshoots and transients clamped to Vcc and Ground.
- Up to 10:1 board space reduction over discrete Schottky diodes, with corresponding component placement cost savings.
- Compact 4-line array approach allows more effective and efficient distributed layout compared to multi-line monolithic arrays.

Applications – End Equipment

1) Designed to protect the sensitive I/O ports of TTL and CMOS ICs from over voltages caused by induced electrical transients. Typical applications include:
   - Data line protection for RS-232, RS-422, and RS-485 transceivers.
   - Micro-controller input port protection.
   - Secondary protection for T1 Line Cards
   - LAN/WAN Equipment
   - Latch-Up protection
   - Video protection
   - Set Top Box I/O line protection
   - Ethernet 10-Base-T protection
   - Protection of memory devices

2) Designed to provide Bus Termination for High Speed Data Systems --
   This low capacitance device appears virtually transparent to the data signal, however, effectively dissipates an over/under voltage to the Vcc or Ground rail during a voltage transient or a pulse reflection.

3) A compact solution to providing the necessary high speed data line termination, ensuring:
   - increased noise immunity,
   - reduced cross-talk between lines, and
   - reduced propagation delays resulting in reduced improper operation and data loss to a devices input circuitry.

   Typical applications include:
   High speed parallel data communication such as:
   - Hard Disk Drives
   - DAT Drives
   - Disc Arrays
   - Network Peripherals

   Termination of data lines
   Termination networks

Ways It Surpasses Its Competition

- Far more rugged than monolithic arrays
- Much lower cost than monolithic arrays
- Ease of layout
- Ease of placement
- Significant space advantage over other discrete Schottky approaches

QSBT40

QUAD DATA LINE SCHOTTKY BUS TERMINATOR

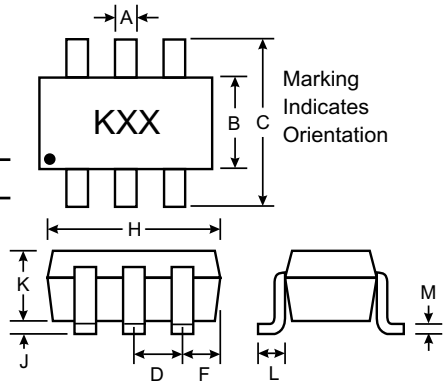
NEW PRODUCT

Features

- Low Forward Voltage Drop
- Fast Switching
- Very High Density
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection

Mechanical Data

- Case: SOT-363, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagrams Below
- Weight: 0.006 grams (approx.)
- Marking Code: KST



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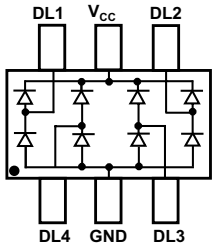

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	V
Forward Continuous Current	I_{FM}	200	mA
Non-Repetitive Peak Forward Surge Current @ t < 1.0s	I_{FSM}	600	mA
Power Dissipation	P_d	200	mW
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	625	K/W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +125 -65 to +125	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Typ	Max	Unit	Test Condition
Maximum Forward Voltage	V_{FM}	—	280 350 450 550 1000	mV	I_F = 0.1mA, tp < 300µS I_F = 1.0mA, tp < 300µS I_F = 10mA, tp < 300µS I_F = 30mA, tp < 300µS I_F = 100mA, tp < 300µS
Maximum Peak Reverse Current	I_{RM}	—	2	µA	V_R = 25V
Junction Capacitance (Note 1)	C_j	10.0	—	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	5.0	ns	I_F = I_R = 10mA, I_{rr} = 0.1 x I_R, R_L = 100Ω

Notes: 1. At V_R= 0V, DL(X) to V_{CC} or GND.