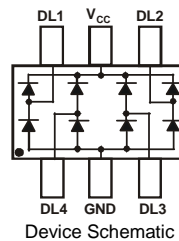


**QUAD DATA LINE SCHOTTKY BUS TERMINATOR**
**Features**

- Low Forward Voltage Drop
- Fast Switching
- Very High Density
- Ultra-Small Surface Mount Package PN Junction Guard Ring for Transient and ESD Protection
- Provide Transient Protection for High-Speed Data Lines in Accordance With:  
IEC61000-4-2 (ESD) 15kV (Air), 8kV (Contact)  
IEC61000-4-4 (EFT) 80A (tp = 5/50 ns)  
IEC61000-4-5 (Lightning) Class 3
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3 and 4)**


**Mechanical Data**

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.006 grams (approximate)


**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Forward Continuous Current (Note 1)	I <sub>FM</sub>	200	mA
Non-Repetitive Peak Forward Surge Current @ t < 1.0s	I <sub>FSM</sub>	600	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P <sub>D</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 1)	R <sub>θJA</sub>	625	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +125	°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>(BR)R</sub>	30	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	—	280 350 450 550 1000	mV	I <sub>F</sub> = 0.1mA, tp < 300μS I <sub>F</sub> = 1.0mA, tp < 300μS I <sub>F</sub> = 10mA, tp < 300μS I <sub>F</sub> = 30mA, tp < 300μS I <sub>F</sub> = 100mA, tp < 300μS
Reverse Current (Note 5)	I <sub>R</sub>	—	—	2	μA	V <sub>R</sub> = 25V
Total Capacitance	C <sub>T</sub>	—	10.0 6.5	—	pF	V <sub>R</sub> = 0, f = 1.0MH (Note 6) V <sub>R</sub> = 0, f = 1.0MH <sub>Z</sub> (Note 7)
Reverse Recovery Time	t <sub>rr</sub>	—	—	5.0	ns	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. No purposefully added lead.
  3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  4. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
  5. Short duration pulse test used to minimize self-heating effect.
  6. At V<sub>R</sub> = 0V, DL(X) to V<sub>CC</sub> or GND.
  7. At V<sub>R</sub> = 0V, between Data Lines (e.g., DL1 and DL4).

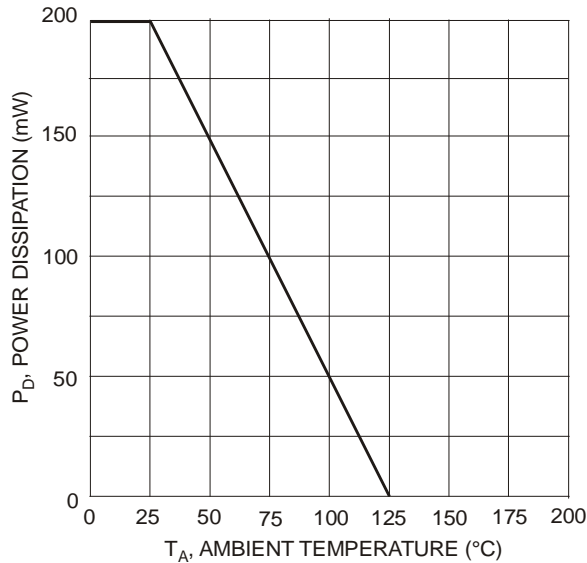


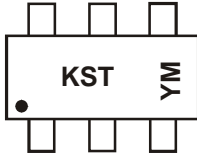
Fig. 1 Max Power Dissipation vs. Ambient Temperature

**Ordering Information** (Note 8)

Part Number	Case	Packaging
QSBT40-7-F	SOT-363	3000/Tape & Reel

Notes: 8. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



KST = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

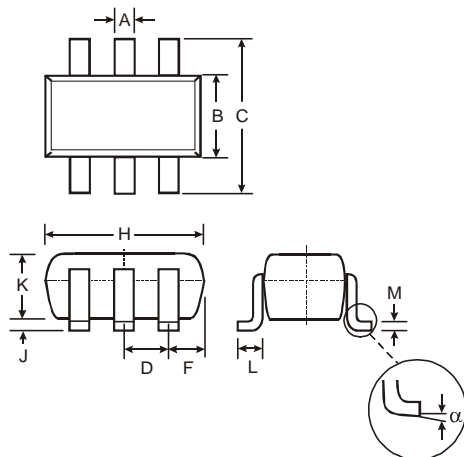
Date Code Key

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	M	N	P	R	S	T	U	V	W	X	Y	Z

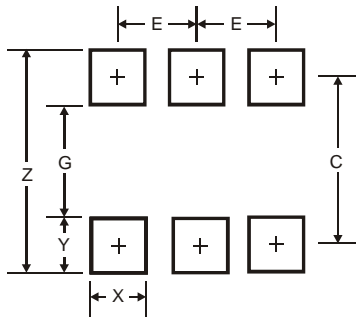
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Package Outline Dimensions**



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°
<b>All Dimensions in mm</b>		

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C	1.9
E	0.65

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