



### QUAD DATA LINE SCHOTTKY BUS TERMINATOR

QSBT40

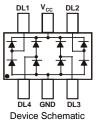
#### **Features**

- 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** $@T_A = 25^{\circ}C$ 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 Working Peak Reverse Voltage DC Blocking Voltage		V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	30	V
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)	PD	200	mW
Thermal Resistance Junction to Ambient Air	(Note 1)	$R_{ ext{ heta}JA}$	625	°C/W
Operating Temperature Range		TJ	-55 to +125	°C
Storage Temperature Range		T <sub>STG</sub>	-65 to +125	°C

## **Electrical Characteristics** $@T_A = 25^{\circ}C$ 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		VF	_	_	280 350 450 550 1000	mV	$\begin{split} I_F &= 0.1 mA, \ tp < 300 \mu S \\ I_F &= 1.0 mA, \ tp < 300 \mu S \\ I_F &= 10 mA, \ tp < 300 \mu S \\ I_F &= 30 mA, \ tp < 300 \mu S \\ I_F &= 100 mA, \ tp < 300 \mu S \end{split}$
Reverse Current	(Note 5)	I <sub>R</sub>	_		2	μA	V <sub>R</sub> = 25V
Total Capacitance		CT		10.0 6.5		pF	$V_R = 0, f = 1.0MH (Note 6)$ $V_R = 0, f = 1.0MH_z (Note 7)$
Reverse Recovery Time		t <sub>rr</sub>	_		5.0	ns	$\begin{split} I_F &= I_R = 10 \text{mA}, \\ I_{\text{rr}} &= 0.1 \text{ x } I_R, \text{ R}_L = 100 \Omega \end{split}$

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.

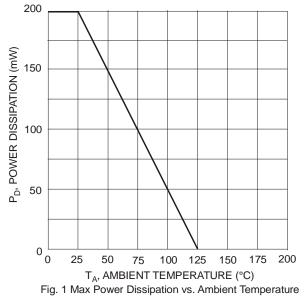
4. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

5. Short duration pulse test used to minimize self-heating effect.

6. At  $V_R = 0V$ , DL(X) to  $V_{CC}$  or GND.

7. At  $V_R = 0V$ , between Data Lines (e.g., DL1 and DL4).



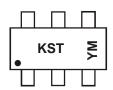


# Ordering Information (Note 8)

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.

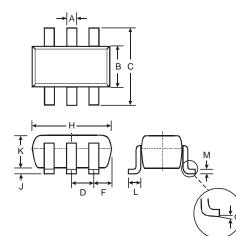
## **Marking Information**



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	М	N	Р	R	S	Т	U	V	W	Х	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	0	N	D
Code	1	2	3	4	5	6	7	8	9	0	N	D

# Package Outline Dimensions

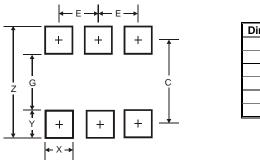


SOT-363							
Dim	Dim Min Max						
Α	0.10	0.30					
В	1.15	1.35					
C	2.00	2.20					
D	0.65 Nominal						
F	0.30 0.40						
Н	1.80	2.20					
J	— 0.10						
ĸ	0.90 1.00						
L	0.25	0.40					
М	0.10 0.25						
α	0°	8°					
All Di	All Dimensions in mm						

QSBT40



# Suggested Pad Layout



Value (in mm)
2.5
1.3
0.42
0.6
1.9
0.65

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