

Small Signal Product

SMD Zener Diode

FEATURES

- Wide zener voltage range selection: 2.0V to 39V
- Designed for mounting on small surface
- Extremely thin / leadless package
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21


0603

MECHANICAL DATA

- Case: 0603
- Terminal: Gold plated, solderable per MIL-STD-750, method 2026
- Polarity: Indicated by cathode band
- Weight: 3 mg (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P_D	150	mW
Forward Voltage @ $I_F = 10\text{mA}$	V_F	0.9	V
Forward Current, Surge Peak 8.3 ms Single Half Sine-Wave Superimposed on Rate Load	I_{FSM}	2	A
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +125	$^{\circ}\text{C}$

Small Signal Product

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Device Marking Code	Zener Voltage			Operating Resistance		Rising Operating Resistance		Reverse Current	
		V_Z (Volt)			Z_{ZT} (Ohm)		Z_{ZK} (Ohm)		I_R (uA)	
		Min	Max	I_Z (mA)	Max	I_Z (mA)	Max	I_Z (mA)	Max	V_R (V)
TSZU52C2V0	Z0	1.90	2.10	5	100	5	600	1	100	1.0
TSZU52C2V2	Z1	2.09	2.31	5	100	5	600	1	100	1.0
TSZU52C2V4	Z2	2.28	2.52	5	85	5	600	1	100	1.0
TSZU52C2V7	Z3	2.57	2.84	5	83	5	500	1	75	1.0
TSZU52C3V0	Z4	2.85	3.15	5	95	5	500	1	50	1.0
TSZU52C3V3	Z5	3.14	3.47	5	95	5	500	1	25	1.0
TSZU52C3V6	Z6	3.42	3.78	5	95	5	500	1	15	1.0
TSZU52C3V9	Z7	3.71	4.10	5	95	5	500	1	10	1.0
TSZU52C4V3	Z8	4.09	4.52	5	95	5	500	1	5.0	1.0
TSZU52C4V7	Z9	4.47	4.94	5	78	5	500	1	5.0	2.0
TSZU52C5V1	ZA	4.85	5.36	5	60	5	480	1	0.1	0.8
TSZU52C5V6	ZB	5.32	5.88	5	40	5	400	1	0.1	1.0
TSZU52C6V2	ZC	5.89	6.51	5	10	5	200	1	0.1	2.0
TSZU52C6V8	ZE	6.46	7.14	5	8	5	150	1	0.1	3.0
TSZU52C7V5	ZF	7.13	7.88	5	7	5	50	1	0.1	5.0
TSZU52C8V2	ZG	7.79	8.61	5	7	5	50	1	0.1	6.0
TSZU52C9V1	ZH	8.65	9.56	5	10	5	50	1	0.1	7.0
TSZU52C10	ZJ	9.50	10.50	5	15	5	70	1	0.1	7.5
TSZU52C11	ZK	10.45	11.55	5	20	5	70	1	0.1	8.5
TSZU52C12	ZM	11.40	12.60	5	20	5	90	1	0.1	9.0
TSZU52C13	ZN	12.35	13.65	5	25	5	110	1	0.1	10
TSZU52C15	ZP	14.25	15.75	5	30	5	110	1	0.1	11
TSZU52C16	ZQ	15.20	16.80	5	40	5	170	1	0.1	12
TSZU52C18	ZR	17.10	18.90	5	50	5	170	1	0.1	14
TSZU52C20	ZS	19.00	21.00	5	50	5	220	1	0.1	15
TSZU52C22	ZT	20.90	23.10	5	55	5	220	1	0.1	17
TSZU52C24	ZU	22.80	25.20	5	80	5	220	1	0.1	18
TSZU52C27	ZV	25.65	28.35	5	80	5	250	1	0.1	20
TSZU52C30	ZW	28.50	31.50	5	80	5	250	1	0.1	23
TSZU52C33	ZX	31.35	34.65	5	80	5	250	1	0.1	25
TSZU52C36	ZY	34.20	37.80	5	90	5	250	1	0.1	27
TSZU52C39	ZZ	37.05	40.95	5	90	5	300	1	0.1	29

Small Signal Product

RATINGS AND CHARACTERISTICS CURVES

($T_A=25^\circ\text{C}$ unless otherwise noted)

Fig. 1 Temperature Coefficients

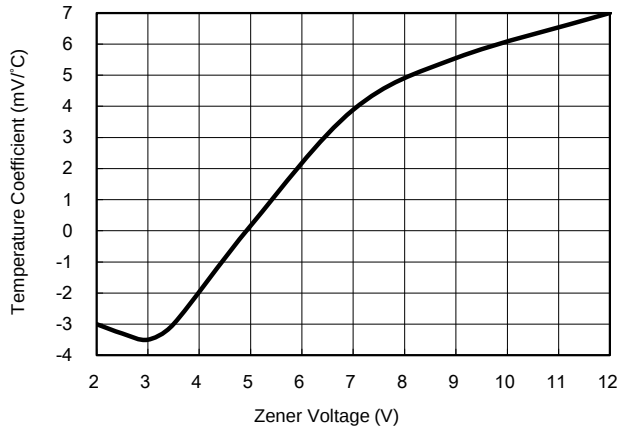


Fig. 2 Temperature Coefficients

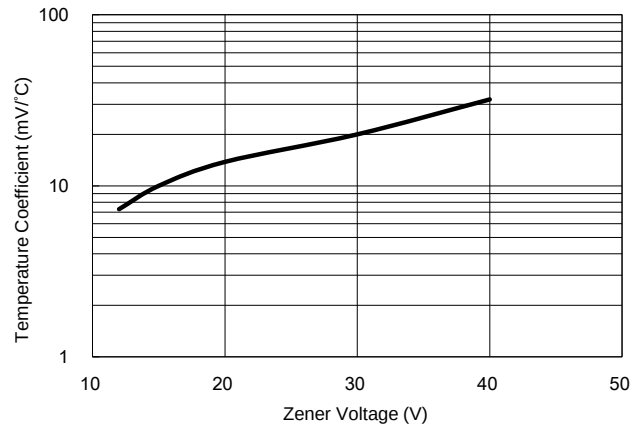


Fig. 3 Effect of Zener Voltage on Zener Impedance

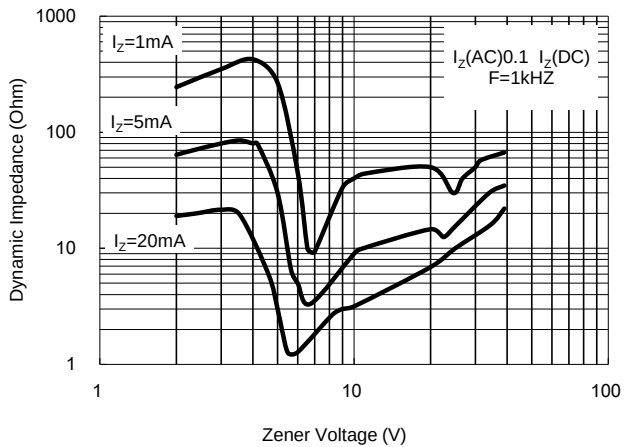


Fig. 4 Typical Forward Voltage

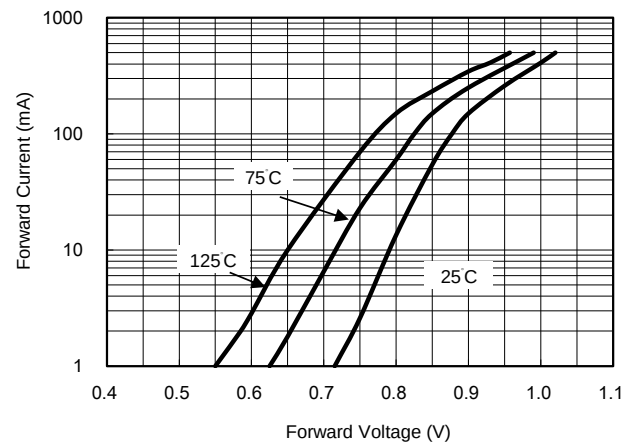


Fig. 5 Typical Leakage Current

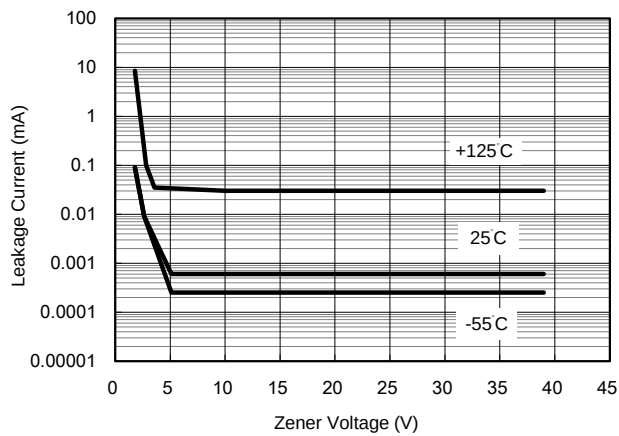
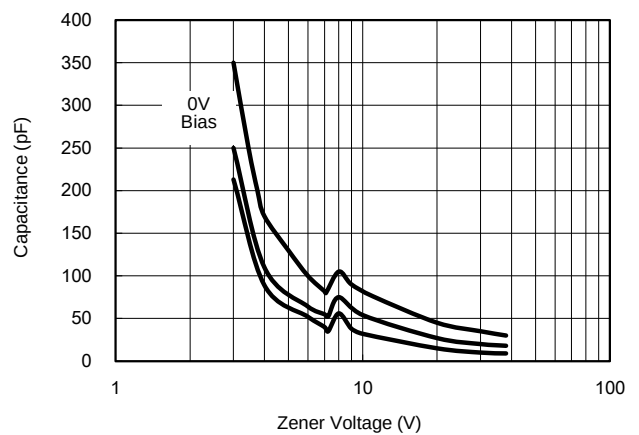


Fig. 6 Typical Capacitance



Small Signal Product

Fig. 7 Zener Voltage VS. Zener Current

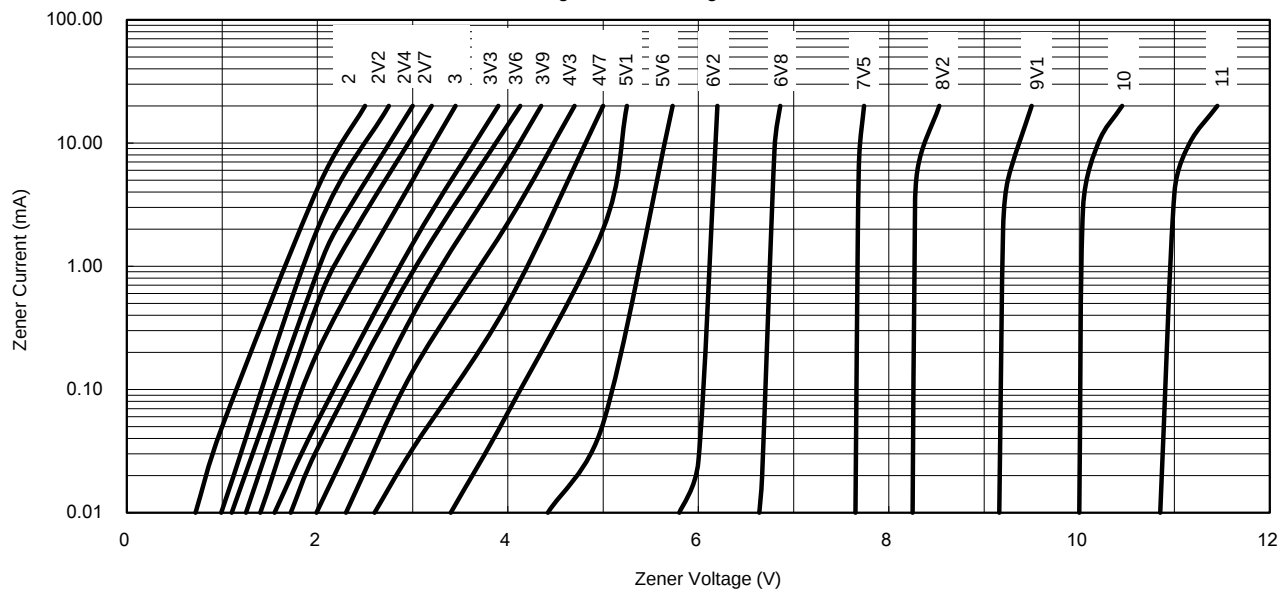


Fig. 8 Zener Voltage vs. Zener Current

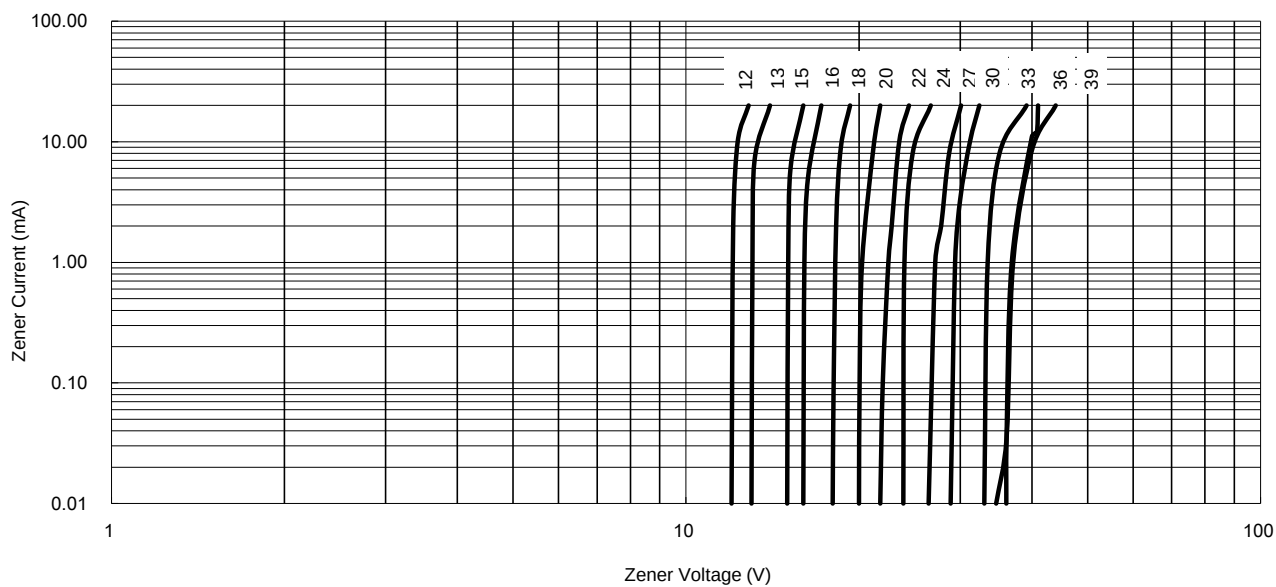
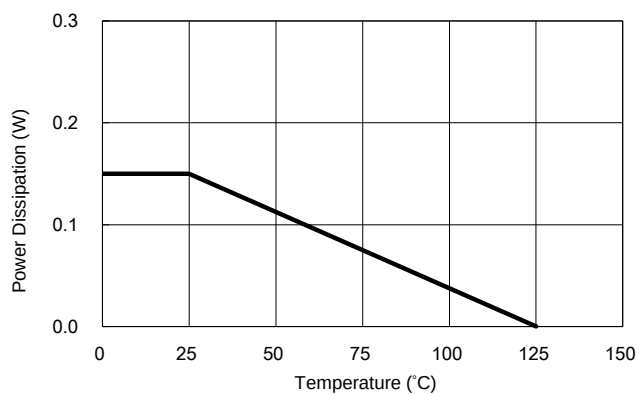


Fig. 9 Steady State Power Derating



Small Signal Product

ORDERING INFORMATION

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TSZU52Cxxx (Note1, 2)	RG	G	0603	4K / 7" Reel

Note 1: "xxx" defines voltage from 2.0V (TSZU52C2V0) to 39V (TSZU52C39)

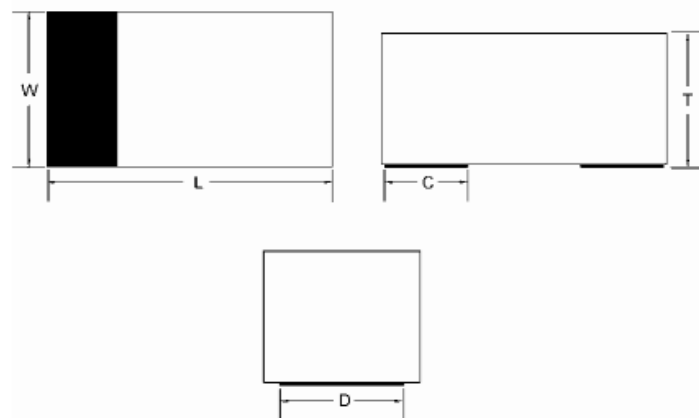
Note 2: Whole series with green compound

EXAMPLE

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TSZU52C39 RGG	TSZU52C39	RG	G	Green compound

PACKAGE OUTLINE DIMENSION

0603



DIM.	Unit (mm)			Unit (inch)		
	Min	Typ.	Max	Min	Typ.	Max
L	1.60	-	1.80	0.063	-	0.071
W	0.80	-	1.00	0.031	-	0.039
T	0.70	-	0.85	0.028	-	0.033
C	-	0.45	-	-	0.018	-
D	-	0.70	-	-	0.028	-

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Taiwan Semiconductor:

[TSZU52C2V0](#) [TSZU52C10](#) [TSZU52C11](#) [TSZU52C12](#) [TSZU52C13](#) [TSZU52C15](#) [TSZU52C16](#) [TSZU52C18](#)
[TSZU52C20](#) [TSZU52C24](#) [TSZU52C27](#) [TSZU52C2V2](#) [TSZU52C2V4](#) [TSZU52C2V7](#) [TSZU52C30](#) [TSZU52C33](#)
[TSZU52C36](#) [TSZU52C39](#) [TSZU52C3V3](#) [TSZU52C3V6](#) [TSZU52C3V9](#) [TSZU52C4V3](#) [TSZU52C4V7](#) [TSZU52C5V1](#)
[TSZU52C5V6](#) [TSZU52C6V2](#) [TSZU52C6V8](#) [TSZU52C7V5](#) [TSZU52C8V2](#) [TSZU52C9V1](#) [TSZU52C22 RZ](#)
[TSZU52C3V0 RZ](#) [TSZU52C10 RG](#) [TSZU52C11 RG](#) [TSZU52C12 RG](#) [TSZU52C13 RG](#) [TSZU52C15 RG](#)
[TSZU52C16 RG](#) [TSZU52C18 RG](#) [TSZU52C20 RG](#) [TSZU52C22 RG](#) [TSZU52C24 RG](#) [TSZU52C27 RG](#)
[TSZU52C2V0 RG](#) [TSZU52C2V2 RG](#) [TSZU52C2V4 RG](#) [TSZU52C2V7 RG](#) [TSZU52C30 RG](#) [TSZU52C33 RG](#)
[TSZU52C36 RG](#) [TSZU52C39 RG](#) [TSZU52C3V0 RG](#) [TSZU52C3V3 RG](#) [TSZU52C3V6 RG](#) [TSZU52C3V9 RG](#)
[TSZU52C4V3 RG](#) [TSZU52C4V7 RG](#) [TSZU52C4V7 RGG](#) [TSZU52C5V1 RG](#) [TSZU52C5V6 RG](#) [TSZU52C6V2 RG](#)
[TSZU52C6V8 RG](#) [TSZU52C7V5 RG](#) [TSZU52C8V2 RG](#) [TSZU52C9V1 RG](#)