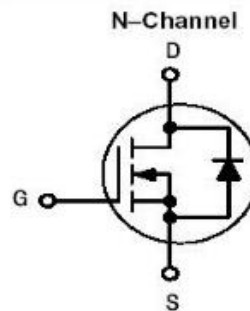
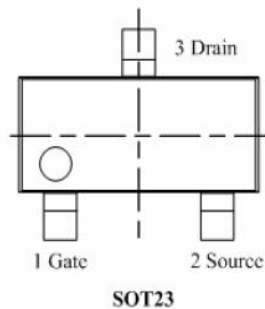




## GENERAL DESCRIPTION

The RZC2300 uses advanced trench technology to provide excellent  $R_{DS(on)}$  and low gate charge. This device is suitable for used as a load switch or in Pulse width modulation applications.

## PIN CONFIGURATION



## FEATURES

- $V_{DS(max)} = 20V$ ;
- $I_{D(max)} = 3.0A$
- Low on-state resistance  
 $R_{DS(on)} = 32m\Omega$  TYP. ( $V_{GS} = 4.5V$ )  
 $R_{DS(on)} = 40m\Omega$  TYP. ( $V_{GS} = 2.5V$ )

## APPLICATIONS

- Power Management in Notebook Computer
- Portable Equipment
- Battery Powered Systems.

## ORDERING INFORMATION

Part Number	Package	Top Marking	Packing
RZC2300	SOT-23	2300	3000PCS/Real

**MAXIMUM RATINGS** ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Units	
Drain to Source Voltage	$V_{DSS}$	20	V	
Gate to Source Voltage	$V_{GSS}$	$\pm 12$	V	
Continuous Drain Current	$25^\circ\text{C}$	$I_D$	3	A
	$85^\circ\text{C}$		2.4	A
Pulsed Drain Current	$I_{D(pulse)}$	12	A	
Maximum Power Dissipation	$25^\circ\text{C}$	$P_D$	0.85	W
Operating Junction Temperature	$T_J$	+150	$^\circ\text{C}$	
Storage Temperature	$T_{STG}$	-55-+150	$^\circ\text{C}$	
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	260	$^\circ\text{C}$	

**ELECTRICAL CHARACTERISTICS** (TA = 25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Units
Drain-Source Breakdown Voltage	BVDSS	V <sub>GS</sub> =0V, I <sub>DS</sub> =250uA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> =0V			1.0	uA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V			±100	nA
Gate threshold voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.5	0.7	1.0	V
Drain to Source On-state Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> =2.0A		32	40	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> =1.0A		40	50	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1.0MHZ		550		pF
Output Capacitance	C <sub>oss</sub>			120		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			80		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, I <sub>DS</sub> =1.0A, V <sub>GS</sub> =4.5V, R <sub>G</sub> =0.2Ω		8.0	14	nS
Rise Time	t <sub>r</sub>			6.0	12	nS
Turn-off Delay Time	t <sub>d(off)</sub>			19	45	nS
Fall Time	t <sub>f</sub>			7.0	23	nS
Total Gate Charge	Q <sub>G</sub>	V <sub>DD</sub> =10V, I <sub>D</sub> =1.0A, V <sub>GS</sub> =4.5V,		10	12	nC
Gate to Source Charge	Q <sub>GS</sub>			3.6		nC
Gate to Drain Charge	Q <sub>GD</sub>			2.0		nC
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			1.2	V



**TYPICAL CHARACTERISTICS** (25°C unless noted)

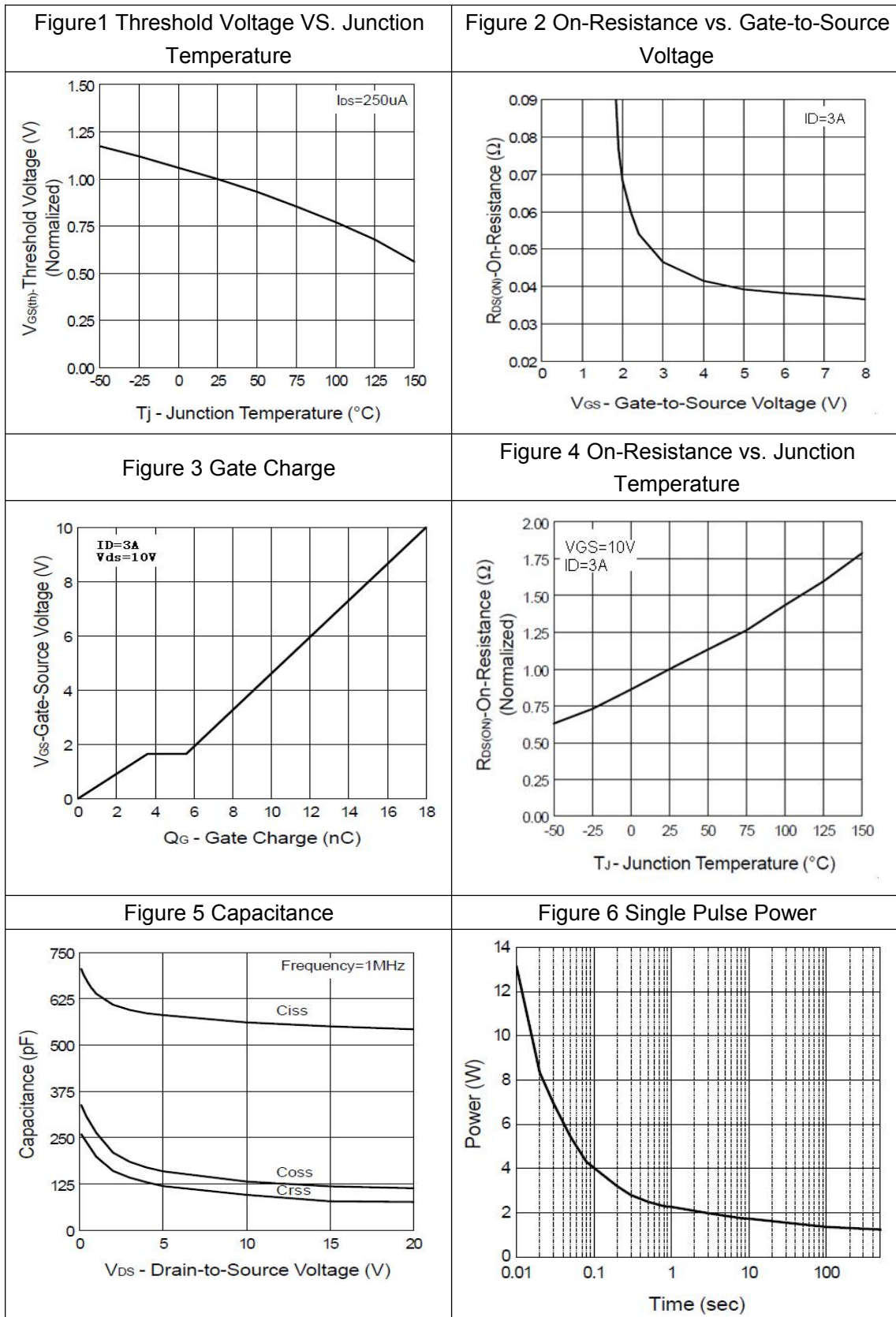
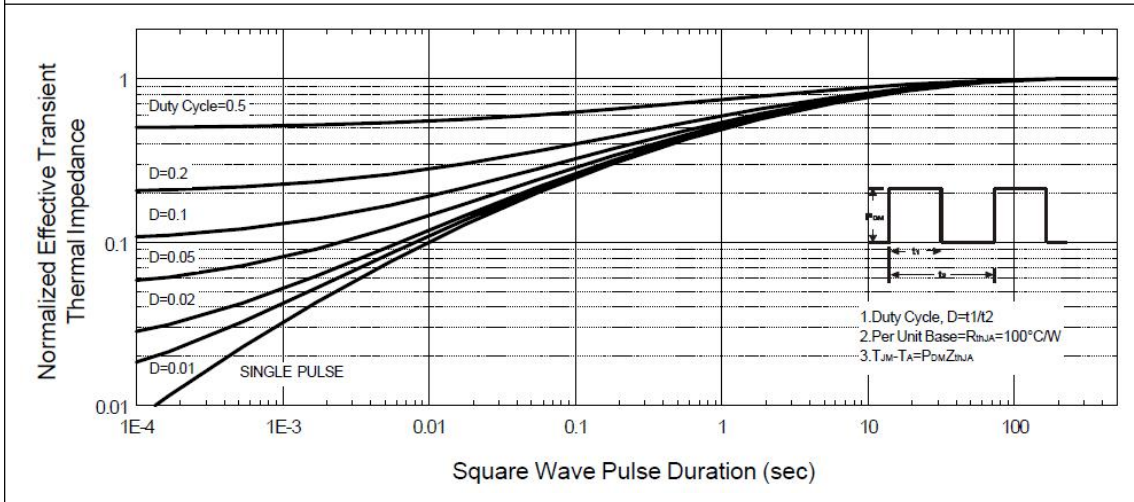




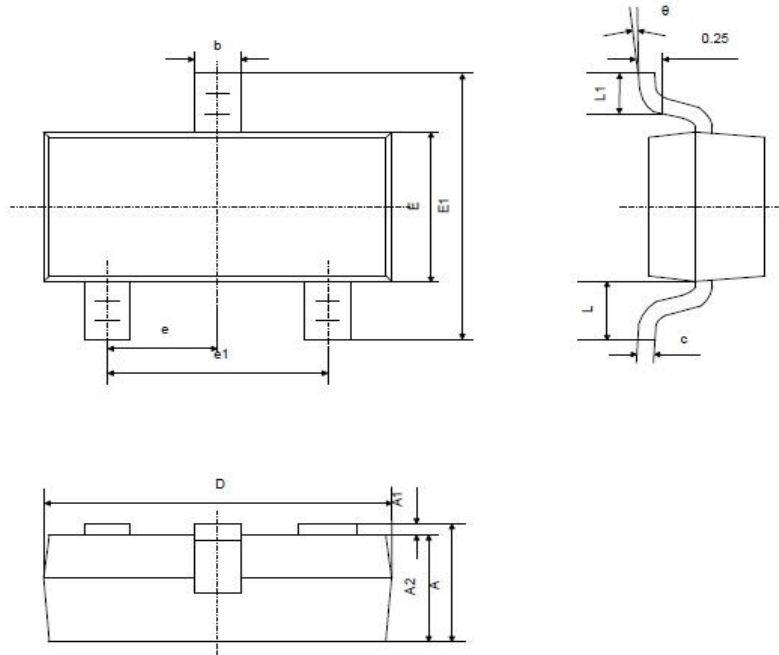
Figure 7 Normalized Thermal Transient Impedance, Junction to Ambient





## PACKAGE DIMENSIONS

### SOT-23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	6°

**Note:**

1. Dimension D does not include mold flash, protrusions or gate burrs. mold flash, protrusions or gate burrs shall not exceed 0.10mm per side.
2. Dimension E1 does not include inter-lead flash or protrusion. Inter-lead flash or protrusion shall not exceed 0.1mm per side.