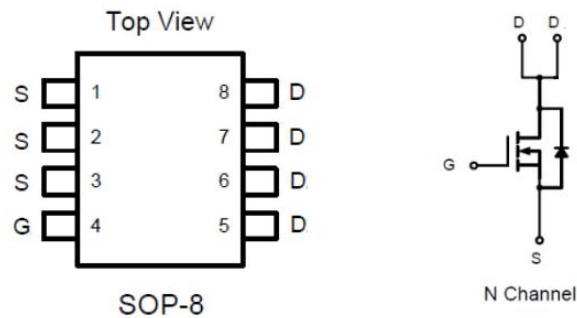




## GENERAL DESCRIPTION

The RZC3002 uses advanced trench technology to provide excellent  $R_{DS(ON)}$  and low gate charge. The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.

## PIN CONFIGURATION



## FEATURES

- N-Channel  
30V/7A,  
 $R_{DS(ON)}=18m\Omega$  (MAX.) @  $V_{GS}=10V$   
 $R_{DS(ON)}=26m\Omega$  (MAX.) @  $V_{GS}=4.5V$
- Super High Dense Cell Design
- Reliable and Rugged

## APPLICATIONS

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

## ORDERING INFORMATION

Part Number	Package	Top Marking	Packing
RZC3002	SOP-8	S3002	3000PCS/Real

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

Parameter	Symbol	Value	Units	
Drain to Source Voltage	$V_{DSS}$	30	V	
Gate to Source Voltage	$V_{GSS}$	$\pm 20$	V	
Continuous Drain Current	$I_D$	$25^\circ\text{C}$	7	A
		$70^\circ\text{C}$	5.6	A
Pulsed Drain Current	$I_{D(pulse)}$	35	A	
Maximum Power Dissipation	$P_D(25^\circ\text{C})$	1.5	W	
Single Pulse Avalanche Energy	$E_{AS}$	20	mJ	
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	VGS=0V, ID=250uA	30			V
Zero Gate Voltage Drain Current	IDSS	VDS=24V, VGS=0V TJ=25°C			1	uA
		VDS=24V, VGS=0V TJ=55°C			5	uA
Gate Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate threshold voltage	VGS(TH)	VDS=VGS, ID=250µA	1.2		2.5	V
Drain to Source On-state Resistance <sup>(note 2)</sup>	RDS(ON)	VGS=10V, ID=7A		15	18	mΩ
		VGS= 4.5V, ID=4A		20	26	mΩ
Drain-Source Diode Forward Voltage	VSD	IS=1A, VGS=0V			1.2	V
Gate Resistance	Rg	VDS=0V, VGS=0V , f=1MHz			2.1	Ω
Input Capacitance	CISS	VDS=15V , VGS=0V , f=1MHz		583		pF
Output Capacitance	COSS			77		
Reverse Transfer Capacitance	CRSS			59		
Total Gate Charge (10V)	QG	VDD=15V , VGS=4.5V , ID=7A		6		nC
Gate-Source Charge	QGS			2.2		
Gate-Drain Charge	QGD			2		
Turn-On Delay Time	Td(on)	VDD=15V, VGS=10V RG=3.3Ω, ID=7A		1.2		nS
Rise Time	Tr			40		
Turn-Off Delay Time	Td(off)			18		
Fall Time	Tf			7.2		

**DIODE CHARACTERISTICS**

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	Units
Drain-Source Diode Forward Voltage	VSD	IS=1A, VGS=0V			1.2	V
Continuous Source Current <sup>1,5</sup>	IS	VG=VD=0V, Force Current			7.0	A



### TYPICAL CHARACTERISTICS

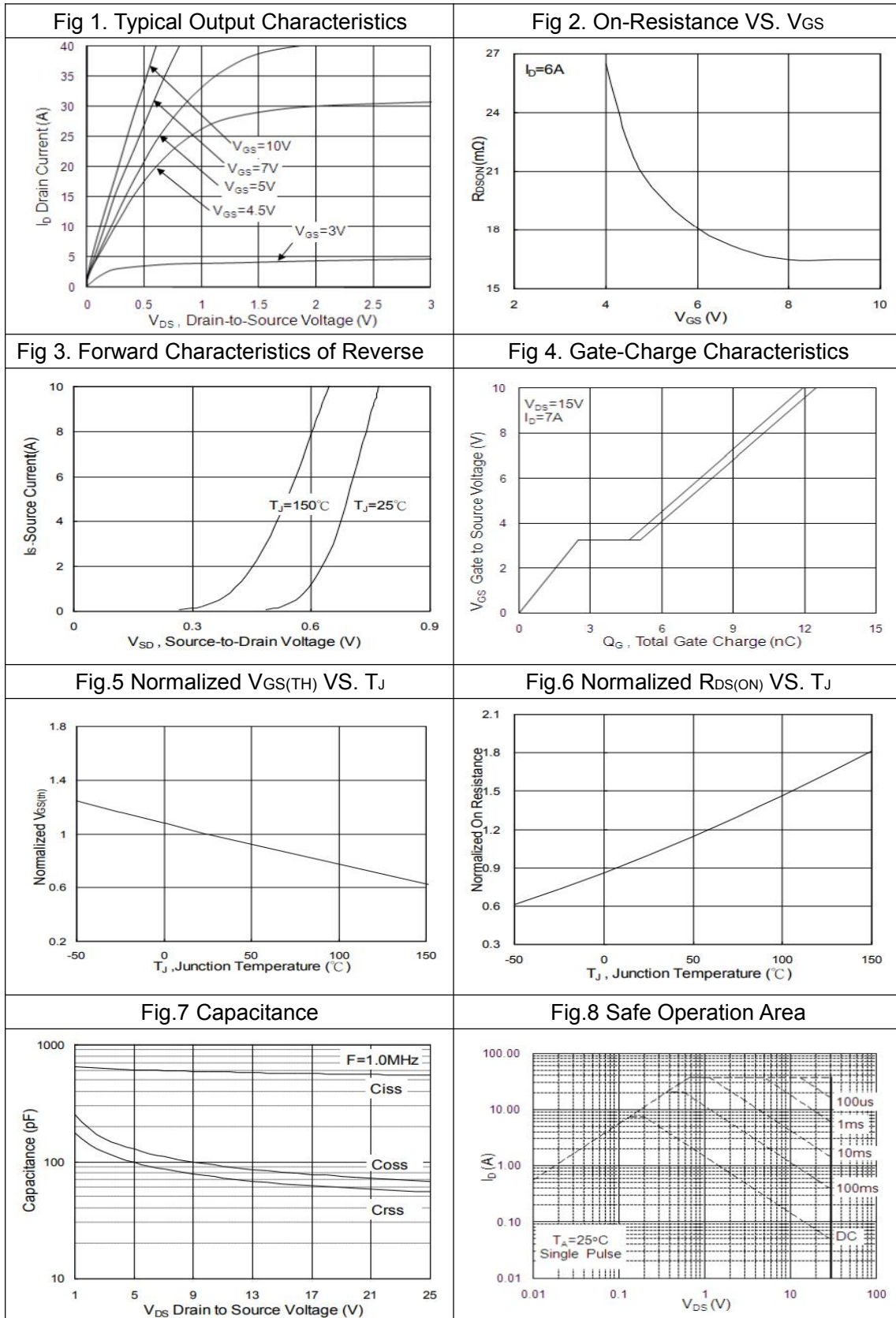
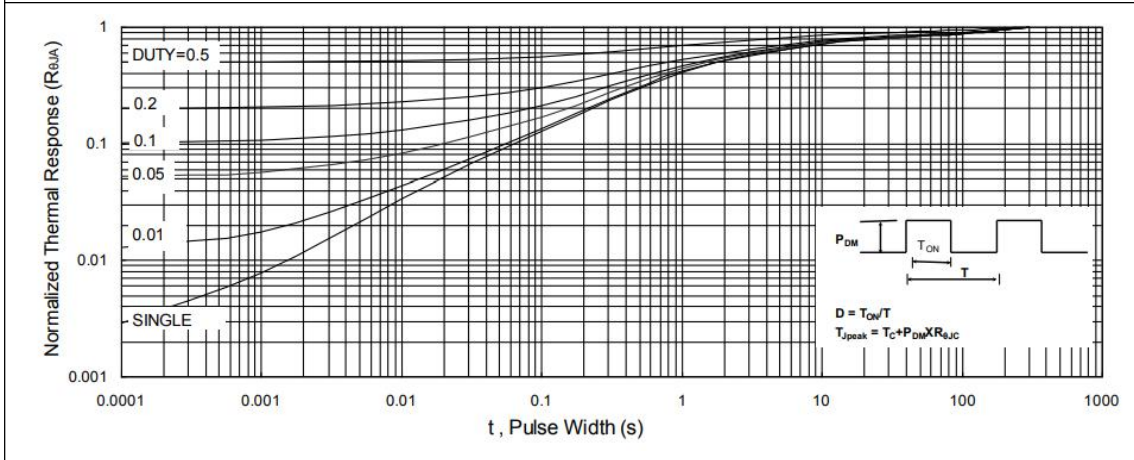
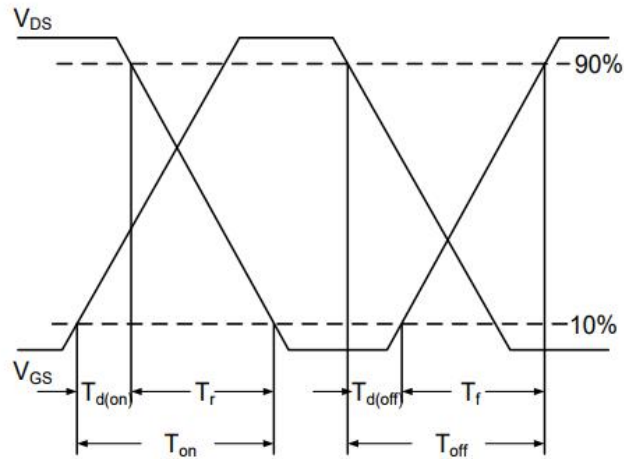




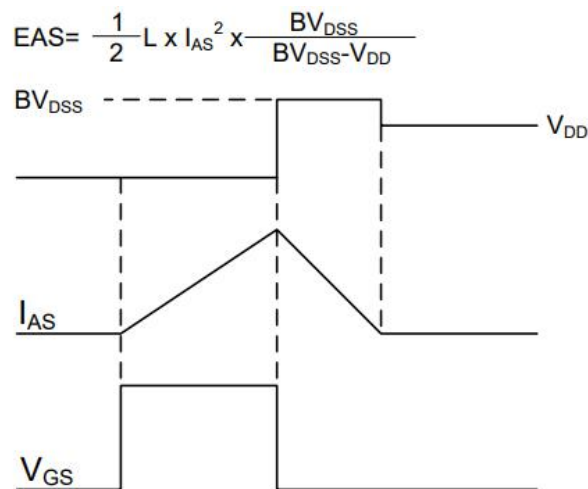
Fig.9 Normalized Maximum Transient Thermal Impedance



Switching Time Waveform



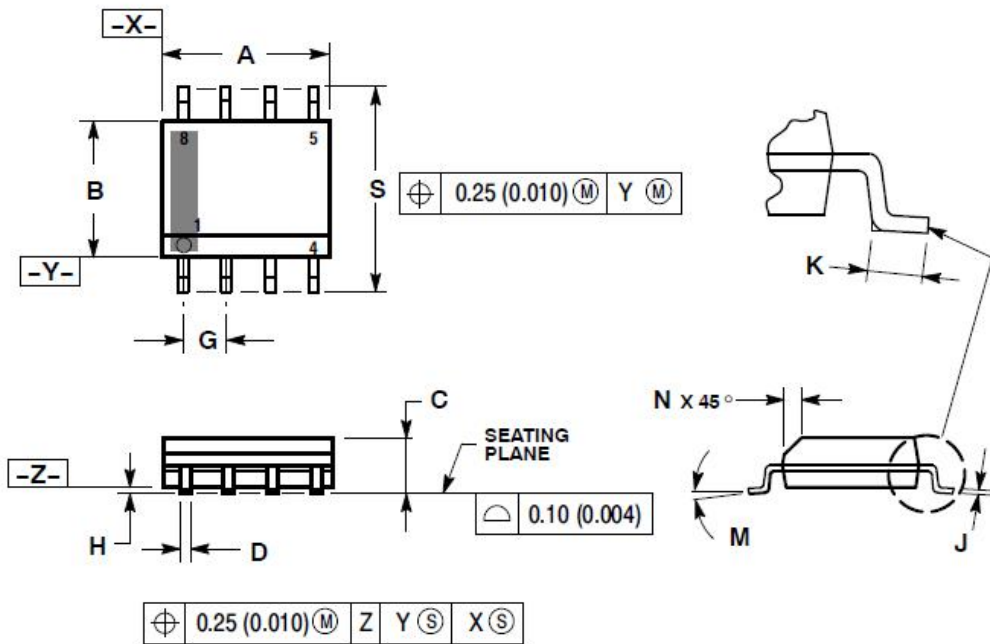
Unclamped Inductive Switching Waveform



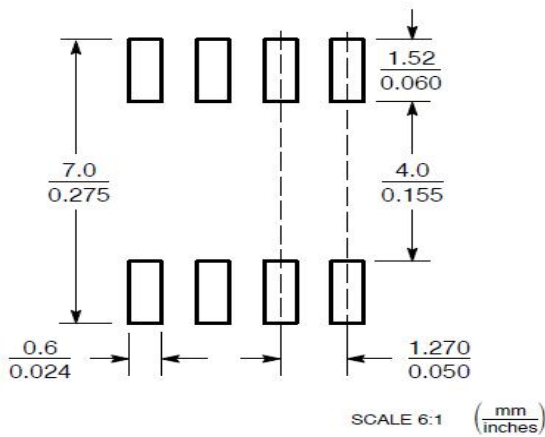


PACKAGE DIMENSIONS

SOP-8



SOLDERING FOOTPRINT\*



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.197
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27 BSC		0.050 BSC	
H	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
M	0°	8°	0°	8°
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244