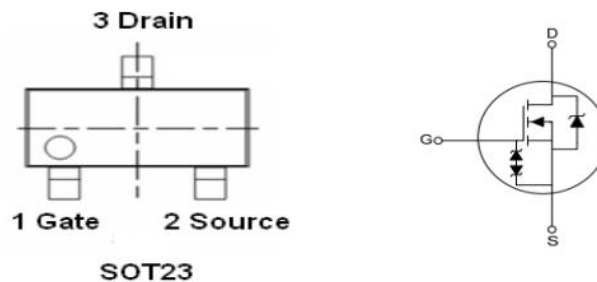




GENERAL DESCRIPTION

The RZC3415E uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as -1.8V. This device is suitable for use as a load switch or in PWM applications. RZC3415E is a Green Product ordering option. It is ESD protected.

PIN CONFIGURATION



FEATURES

- $V_{DS} \geq -20V$;
- $I_D \geq -4.0A$
- Low on-state resistance
 $R_{DS(on)} \leq 47m\Omega$ MAX. ($V_{GS} = -4.5V$)
 $R_{DS(on)} \leq 60m\Omega$ MAX. ($V_{GS} = -2.5V$)
- Super High Dense Cell Design
- Reliable and Rugged
- Built-in G-S protection diode against ESD;.
- Lead Free and Green Devices Available
(RoHS Compliant)

APPLICATIONS

- High Side Load Switch
- Power Management in LCD TV, Monitor, Notebook
Computer, Portable Equipment and Battery Powered Systems

ORDERING INFORMATION

Part Number	Package	Top Marking	Packing
RZC3415E	SOT23	3415E	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}	± 10	V	
Continuous Drain Current	25°C	I_D	-4.0	A
	85°C		-2.6	A
Pulsed Drain Current	$I_{D(pulse)}$	-30	A	
Maximum Power Dissipation	25°C	P_D	1.4	W
Operating Junction Temperature	T_J	+150	$^\circ\text{C/W}$	
Storage Temperature	T_{STG}	-55-+150	$^\circ\text{C}$	
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)	T_L	260	$^\circ\text{C}$	

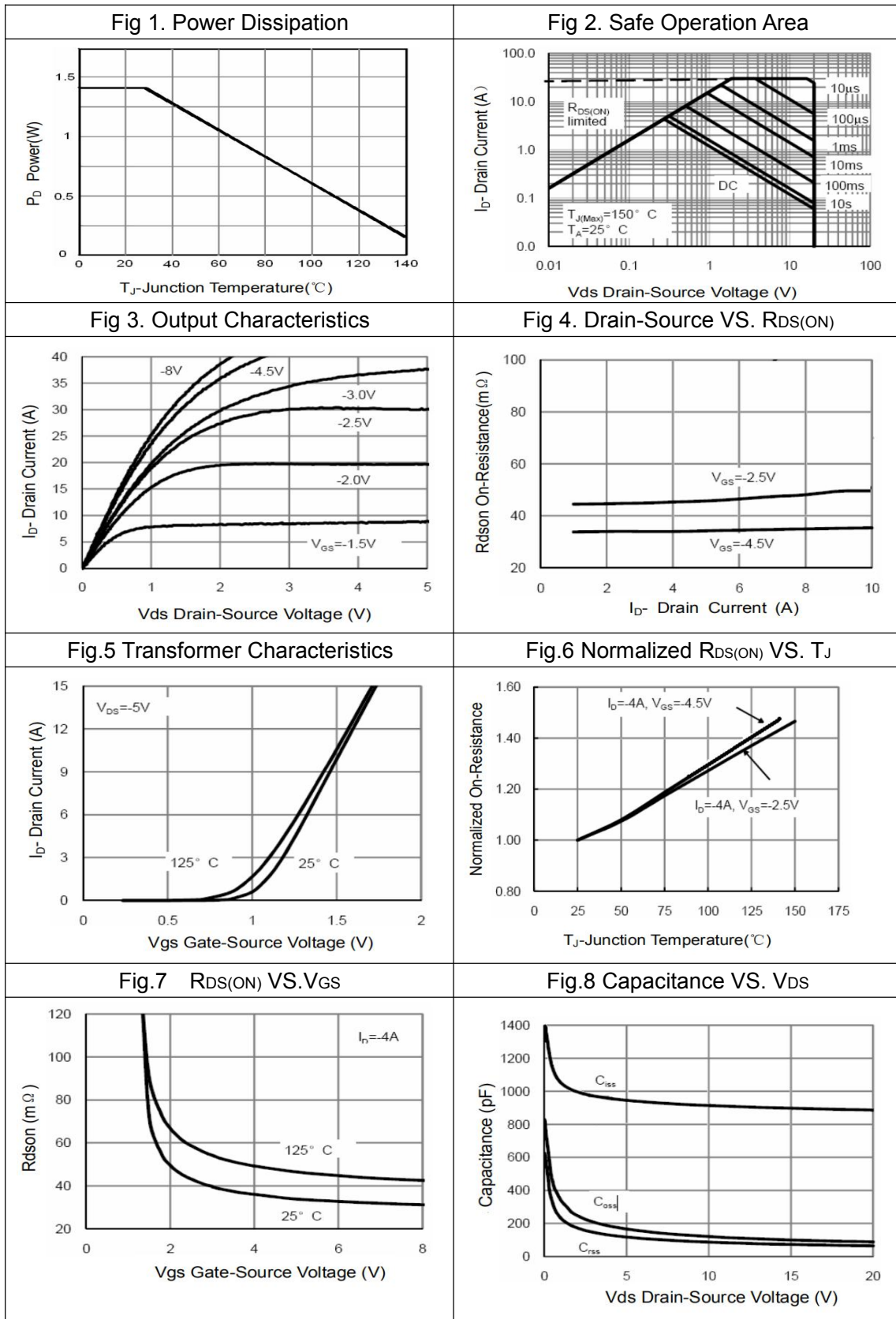


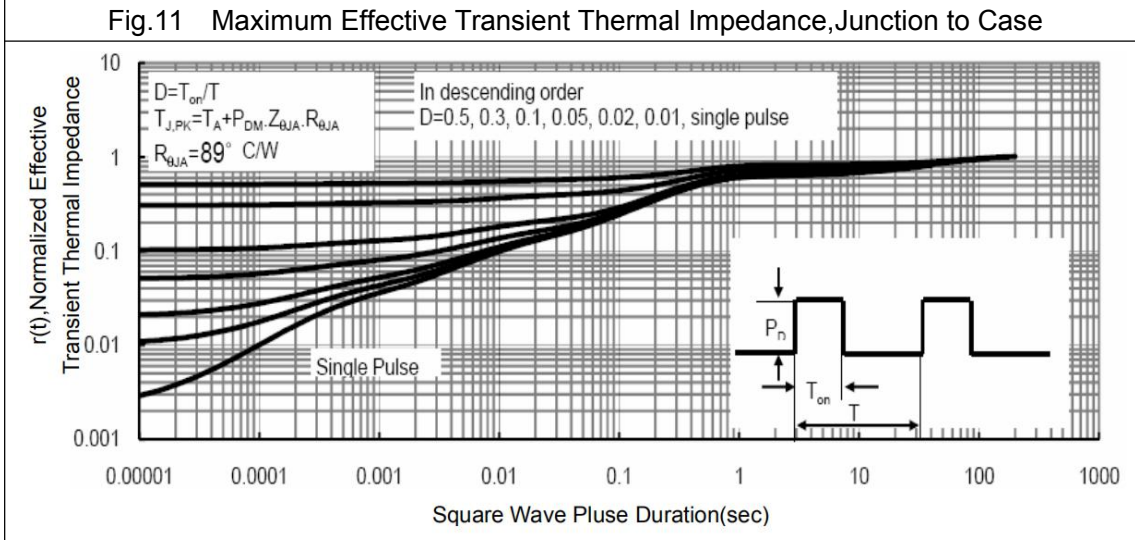
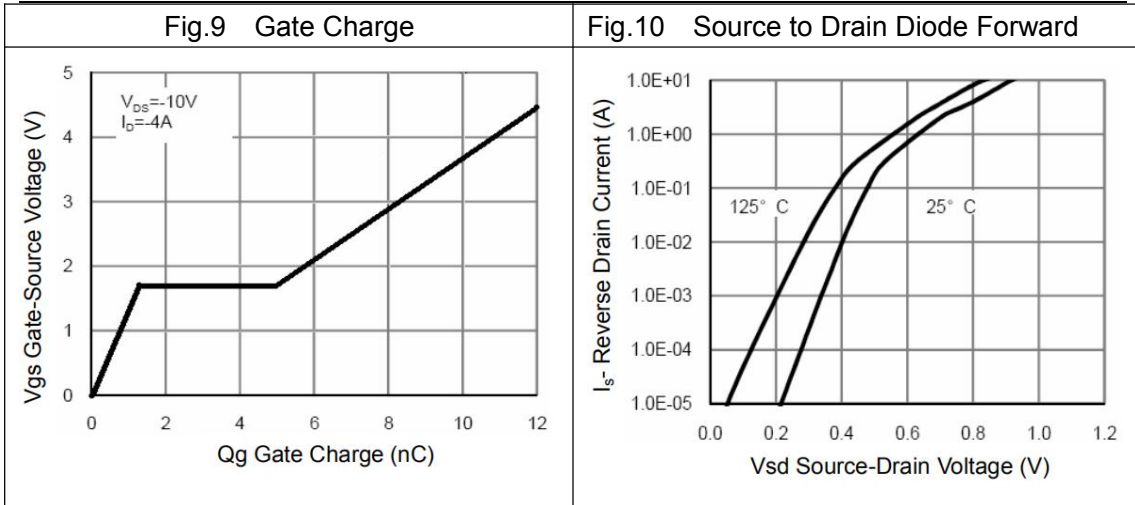
ELECTRICAL CHARACTERISTICS (TA = 25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX	Units
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =-250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V T _J =25°C			-1	uA
		V _{DS} =-20V, V _{GS} =0V T _J =55°C			-5	uA
Gate Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			±10	uA
Gate threshold voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.65	-1.0	V
Drain to Source On-state Resistance _(note 2)	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-4A		34	47	mΩ
		V _{GS} =-2.5V, I _D =-4A		44	60	mΩ
Drain-Source Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V			-1.2	V
Input Capacitance	C _{ISS}	V _{DS} =-10V , V _{GS} =0V , f=1MHz		950		pF
Output Capacitance	C _{OSS}			165		pF
Reverse Transfer Capacitance	C _{RSS}			120		pF
Total Gate Charge (10V)	Q _G	V _{DD} =-10V , V _{GS} =-4.5V , I _D =-4A		12		nC
Gate-Source Charge	Q _{GS}			1.4		nC
Gate-Drain Charge	Q _{GD}			3.6		nC
Turn-On Delay Time	T _{d(on)}	V _{DD} =-10V, V _{GS} =-4.5V R _L =2.5Ω, R _G =3Ω		12		nS
Rise Time	T _r			10		
Turn-Off Delay Time	T _{d(off)}			19		
Fall Time	T _f			25		

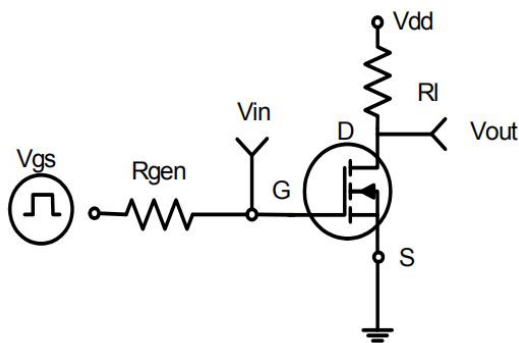


TYPICAL CHARACTERISTICS

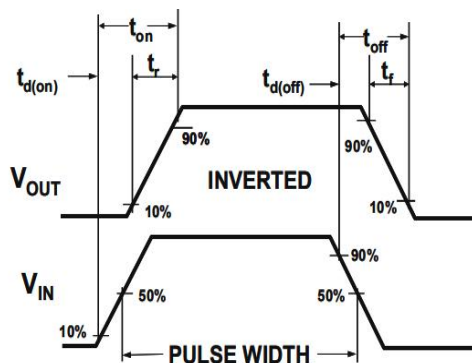




TEST CIRCUIT AND WAVEFORMS



Switching Test Circuit

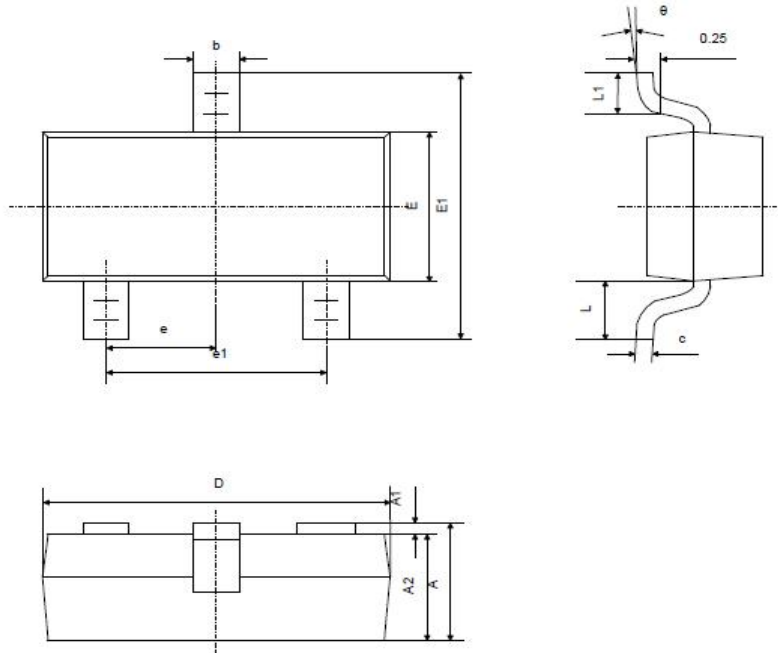


Switching Waveforms



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
θ	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.