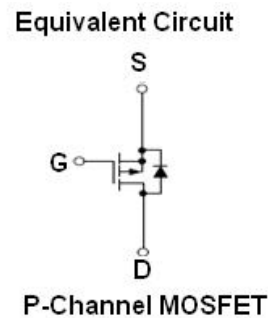
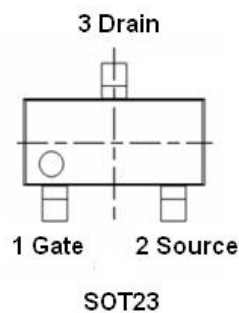




GENERAL DESCRIPTION

The RZC2305 is the high cell density trenched P-Channel MOSFET, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications. The RZC2305 meet the RoHS and Green Product requirement with full function reliability approved.

PIN CONFIGURATION



FEATURES

- $V_{DS(MAX)} = -20V$;
- $I_{D(max)} = -4.0A$
- Low on-state resistance
 $R_{DS(ON)} = 40m\Omega$ TYP. ($V_{GS} = -4.5V$)
 $R_{DS(ON)} = 55m\Omega$ TYP. ($V_{GS} = -2.5V$)

APPLICTIONS

- High Side Load Switch
- Optimized for Power Management Applications for Portable Products, such as Cell Phones, PMP, DSC, GPS, and others.

ORDERING INFORMATION

Part Number	Package	Top Marking	Packing
RZC2305	SOT-23	2305	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}	± 12	V	
Continuous Drain Current	25°C	I_D	-4.0	A
	85°C		-3.2	A
Avalanche Current	I_{AS}	-1.5	A	
Pulsed Drain Current	$I_{D(pulse)}$	-12	A	
Maximum Power Dissipation	25°C	P_D	0.83	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	$^\circ\text{C}$	

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

**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} = -16V, V _{GS} =0V			-1	uA
Gate Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Gate threshold voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D = 250μA	-0.5	-0.7	-1	V
Drain to Source On-state Resistance	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -0.5A		40	55	mΩ
		V _{GS} = -2.5V, I _D = -0.5A		55	75	mΩ
Drain-Source Diode Forward Voltage	V _{SD}	I _S =1.25A, V _{GS} =0V		-0.75	-1.3	V
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz		1135		pF
Output Capacitance	C _{oss}			220		
Reverse Transfer Capacitance	C _{rss}			110		
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-4A		12	16	nC
Gate-Source Charge	Q _{gs}			2.1		
Gate-Drain Charge	Q _{gd}			2.9		
Turn-On Delay Time	T _{d(on)}	V _{DS} =-10V, V _{GS} =-4.5V R _G =6Ω, R _L =10Ω		6	12	nS
Rise Time	T _r			7	14	
Turn-Off Delay Time	T _{d(off)}			72	131	
Fall Time	T _f			45	82	



TYPICAL CHARACTERISTICS

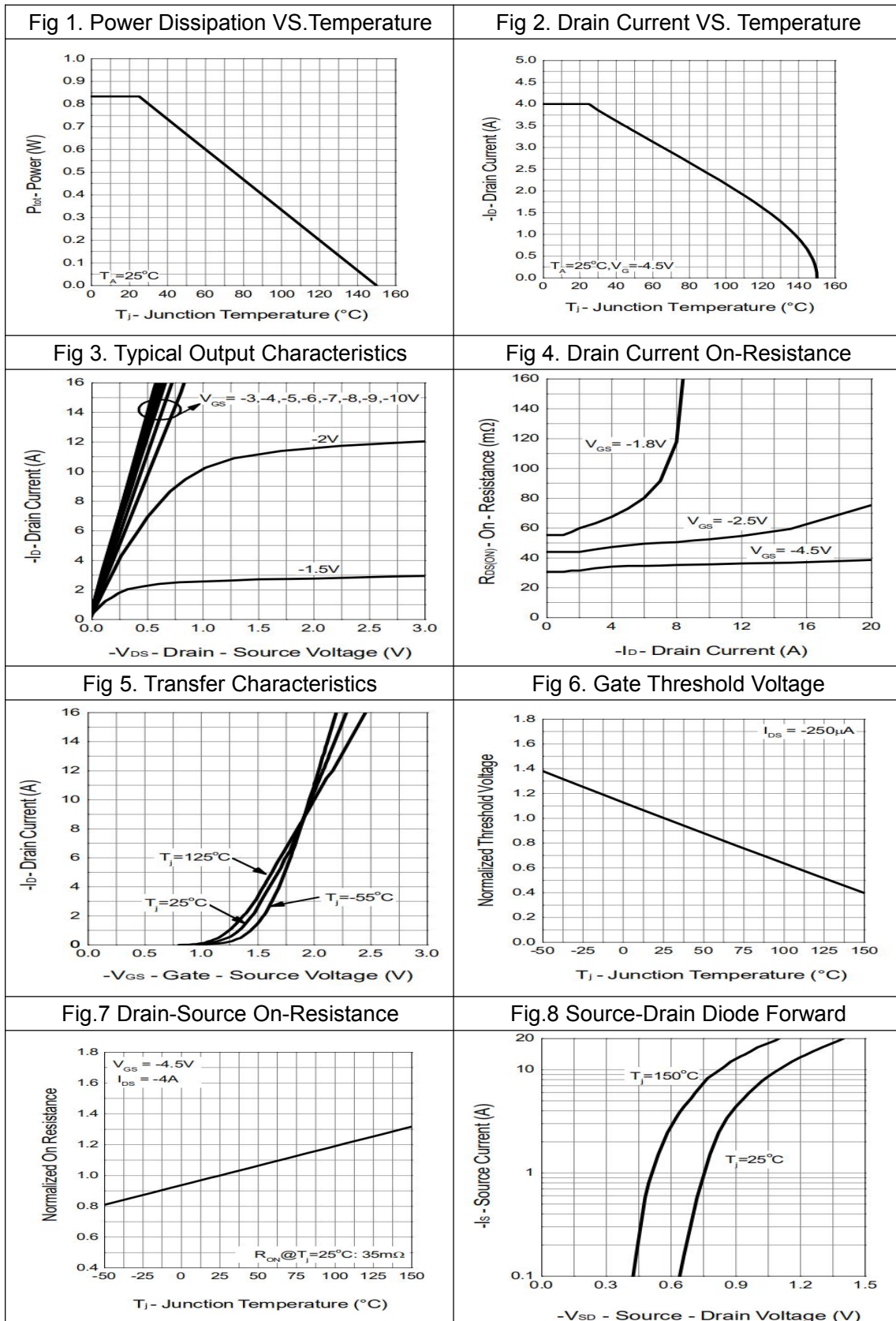




Fig.9 Capacitance

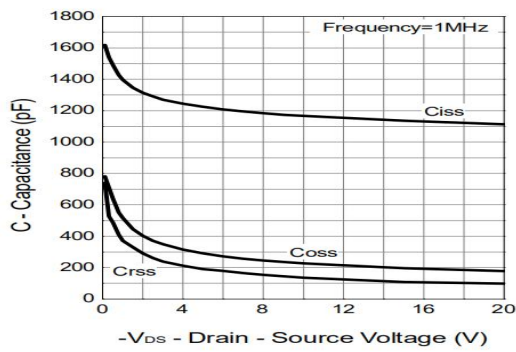


Fig.10 Gate Charge

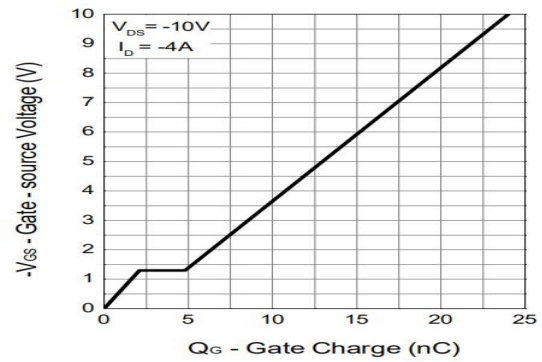
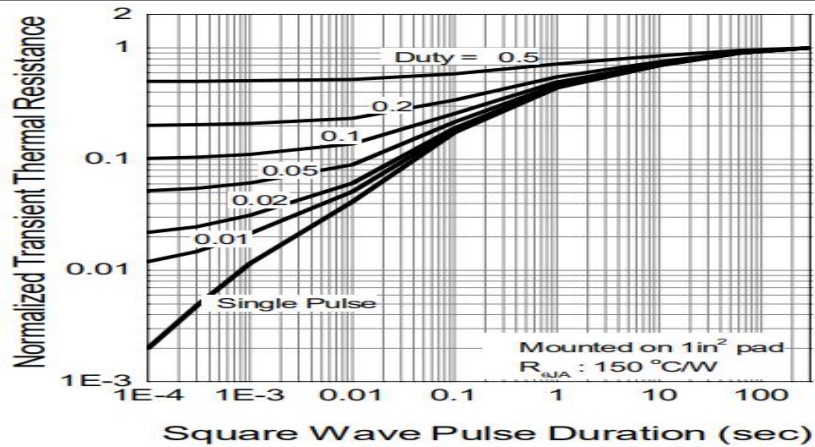


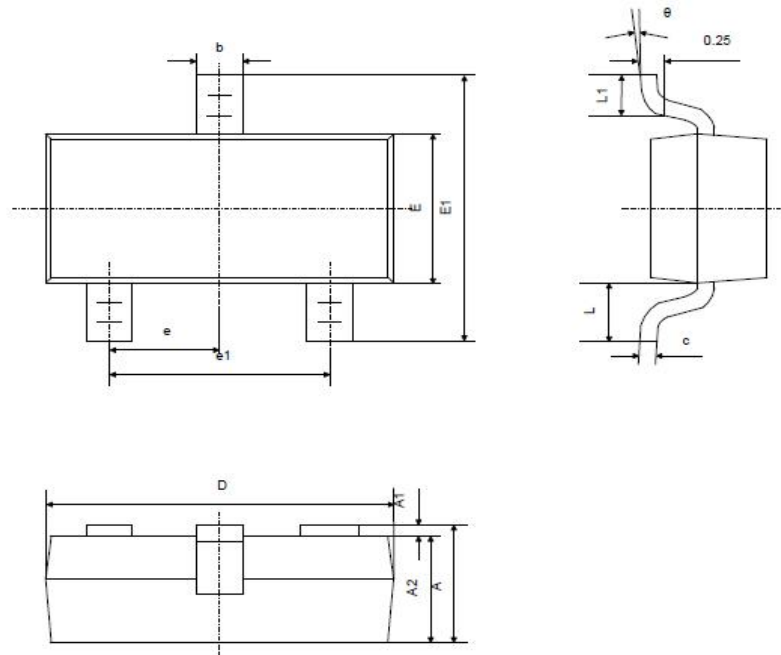
Fig.11 Maximum Effective Transient Thermal Impedance, Junction to Case





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.