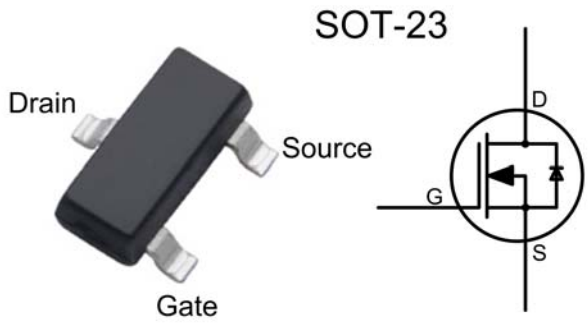
Depletion-Mode Power MOSFET

General Features

- ESD improved Capability
- Depletion Mode (Normally On)
- Proprietary Advanced Planar Technology
- Rugged Polysilicon Gate Cell Structure
- Fast Switching Speed
- RoHS Compliant
- Halogen-free available

BV_{DSX}	$R_{DS(ON)}$ (Max.)	$I_{DSS,min}$
600V	120 Ω	100mA



Applications

- Normally-on Switches
- SMPS Start-up Circuit
- Linear Amplifier
- Converters
- Constant Current Source
- Telecom

Ordering Information

Part Number	Package	Marking	Remark
DMZ6012E	SOT-23	612	Halogen Free

Absolute Maximum Ratings

T_A=25℃ unless otherwise specified

Symbol	Parameter	DMZ6012E	Unit
V_{DSX}	Drain-to-Source Voltage[1]	600	V
V_{DGX}	Drain-to-Gate Voltage[1]	600	V
I_D	Continuous Drain Current	0.1	A
I_{DM}	Pulsed Drain Current[2]	0.4	
P_D	Power Dissipation	0.50	W
V_{GS}	Gate-to-Source Voltage	±20	V
T_L	Soldering Temperature Distance of 1.6mm from case for 10 seconds	300	℃
T_J and T_{STG}	Operating and Storage Temperature Range	-55 to 150	

Caution: Stresses greater than those listed in the"Absolute Maximum Ratings" may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	DMZ6012E	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	250	K/W

Electrical Characteristics

OFF Characteristics

T_A =25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSX}	Drain-to-Source Breakdown Voltage	600	--	--	V	V_{GS}=-5V, I_D=250μA
$I_{D(OFF)}$	Drain-to-Source Leakage Current	--	--	0.1	μA	V_{DS}=600V，V_{GS}= -5V
		--	--	10	μA	V_{DS}=600V，V_{GS}= -5V T_J=125℃
I_{GSS}	Gate-to-Source Leakage Current	--	--	20	uA	V_{GS}=+20V, V_{DS}=0V
		--	--	20		V_{GS}=-20V, V_{DS}=0V

ON Characteristics

T_A =25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
I_{DSS}	Saturated Drain-to-Source Current	100	--	130	mA	V_{GS}=0V, V_{DS}=25V
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	110	120	Ω	V_{GS}=0V，I_D=50mA [3]
$V_{GS(OFF)}$	Gate-to-Source Cut-off Voltage	-3.0	--	-1.8	V	V_{DS} =3V, I_D=8μA
gfs	Forward Transconductance	--	--	--	mS	V_{DS} =10V, I_D=5mA

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{ISS}	Input Capacitance	--	--	--	pF	V_{GS}=-5V V_{DS}=25V f=1.0MH_Z
C_{OSS}	Oput Capacitance	--	--	--		
C_{RSS}	Reverse Transfer Capacitance	--	--	--		
Q_G	Total Gate Charge	--	--	--	nC	V_{GS}=-5V~5V V_{DS}=300V, I_D=7mA
Q_{GS}	Gate-to-Source Charge	--	--	--		
Q_{GD}	Gate-to-Drain (Miller) Charge	--	--	--		

Resistive Switching Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(ON)}$	Turn-on Delay Time	--	--	--	ns	V_{GS} = -5V~5V V_{DD} = 300V, I_D=7mA R_G = 20Ohm
t_{rise}	Rise Time	--	--	--		
$t_{d(OFF)}$	Turn-off Delay Time	--	--	--		
t_{fall}	Fall Time	--	--	--		

Source-Drain Diode Characteristics

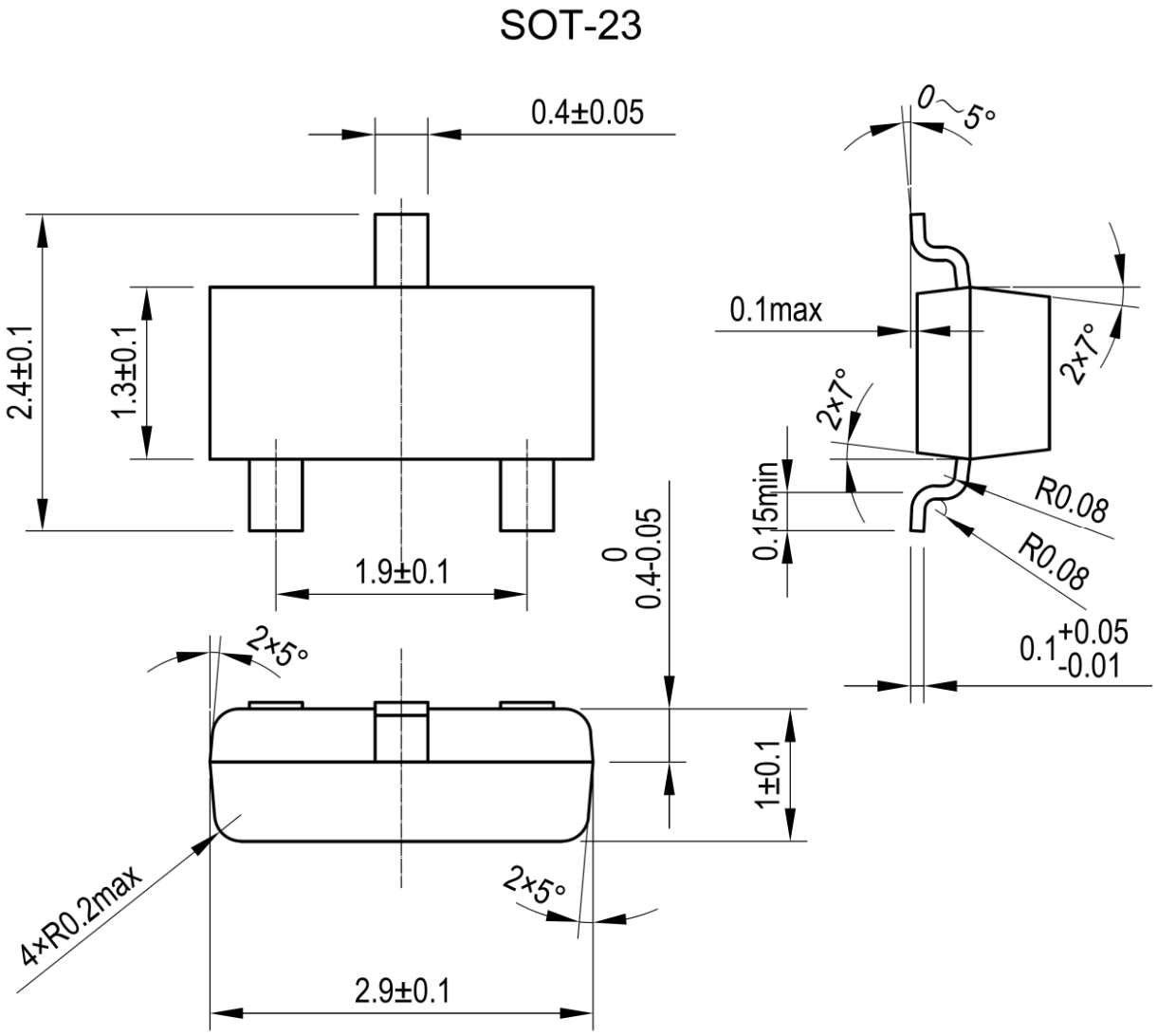
T_A=25℃ unless otherwise specified

Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
V_{SD}	Diode Forward Voltage	--	--	1.2	V	I_{SD} =100 mA, V_{GS} = -10 V

NOTE:

[1] T_J=+25℃ to +150℃
[2] Repetitive rating, pulse width limited by maximum junction temperature.
[3] Pulse width≤380μs;duty cycle≤2%.

Package Dimensions



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