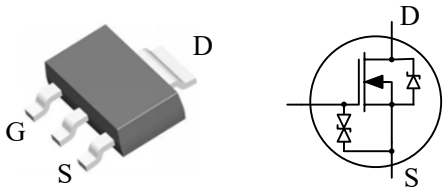
850V Depletion-Mode Power MOSFET

General Features

- Depletion Mode (Normally On)
- ESD Improved Capability
- Fast Switching Speed
- RoHS Compliant
- Halogen-free Available

BV_{DSX}	$R_{DS(ON)(TYP.)}$	I_{DSS}
850V	50 Ω	80mA

SOT-223



Applications

- Normally-On Switches
- Start-up Circuits
- Protection Circuits
- Solid State Relays
- Power Supply
- Active Loads

Ordering Information

Part Number	Package	Marking	Remark
DMS8550E	SOT-223	8550	Halogen Free

Absolute Maximum Ratings

T_A=25℃ unless otherwise specified

Symbol	Parameter	DMS8550E	Unit
V_{DSX}	Drain-to-Source Voltage [1]	850	V
I_D	Continuous Drain Current	80	mA
I_{DM}	Pulsed Drain Current [2]	320	
P_D	Power Dissipation	1.5	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	DMS8550E	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	83	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	850	--	--	V	V_{GS}=-10V, I_D=250μA
$I_{D(OFF)}$	Drain-to-Source Leakage Current	--	--	10	μA	V_{DS}=850V, V_{GS}=-10V
I_{GSS}	Gate-to-Source Leakage Current	--	--	±20	uA	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	80	--	--	mA	V_{GS}=0V, V_{DS}=25V
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	50	80	Ω	V_{GS}=0V, I_D=50mA [3]
$V_{GS(OFF)}$	Gate-to-Source Cut-off Voltage	-1.5	--	-3.3	V	V_{DS}=9V, I_D=8μA
gfs	Forward Transconductance	--	--	--	S	V_{DS}=20V, I_D=50mA

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{iss}	Input Capacitance	--	--	--	pF	V_{GS}=-10V V_{DS}=50V f=1.0MHz
C_{oss}	Output Capacitance	--	--	--		
C_{rss}	Reverse Transfer Capacitance	--	--	--		
Q_g	Total Gate Charge	--	--	--	nC	V_{GS}=-10V~5V V_{DS}=150V, I_D=50mA
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}=-10V~0V V_{DD}=50V, I_D=50mA R_G=10Ω
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

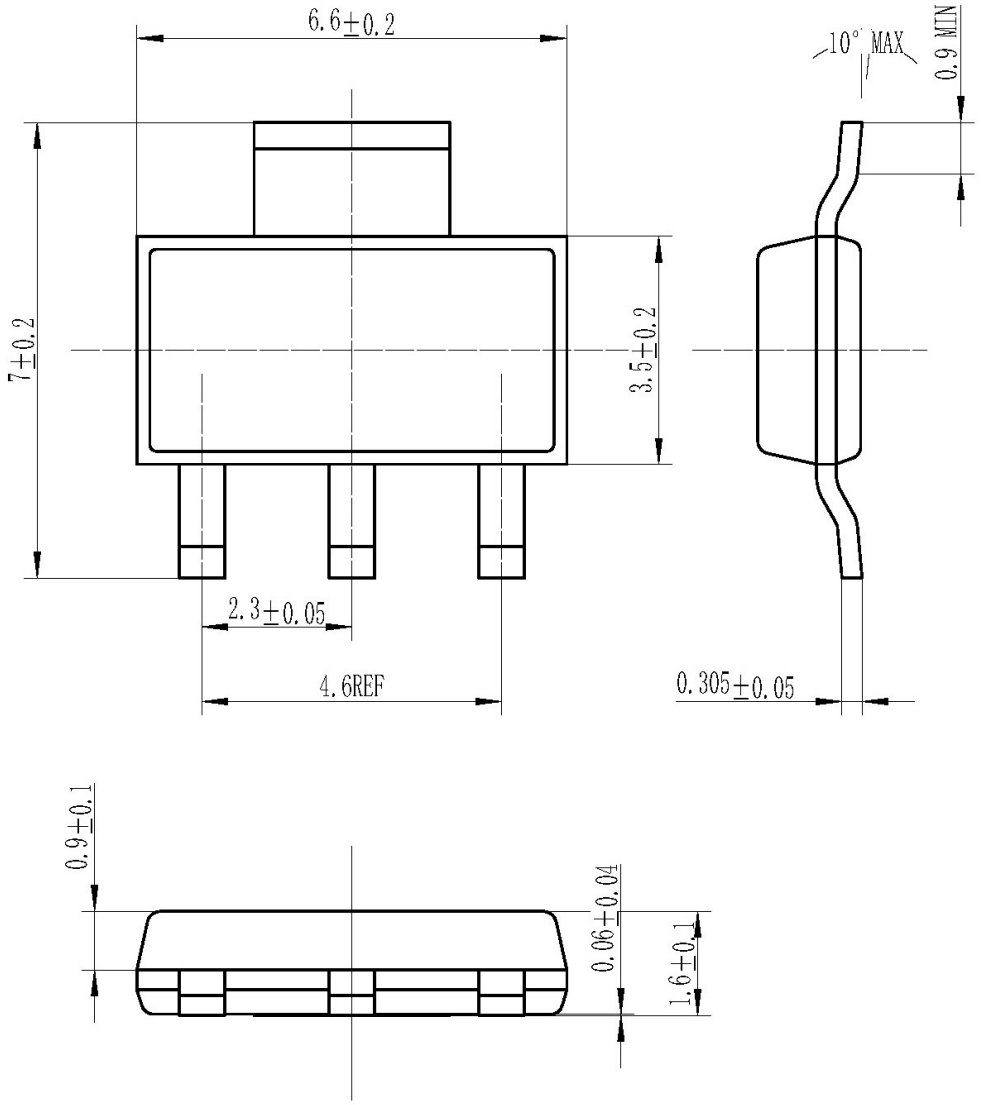
Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
V_{SD}	Diode Forward Voltage	--	--	1.2	V	I_{SD}=50mA, V_{GS}=-10V

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

TO-223



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