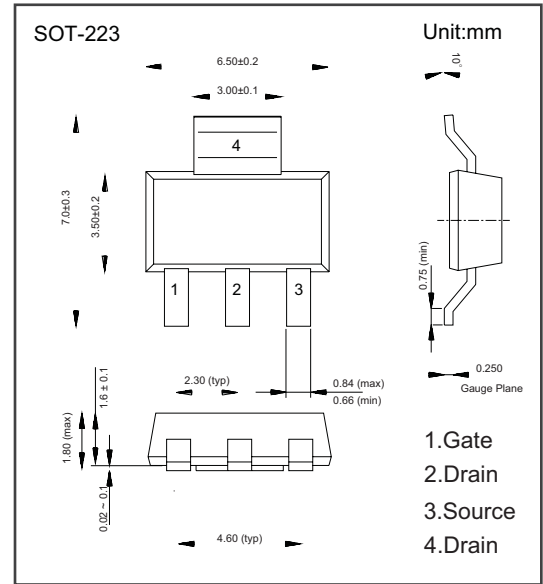
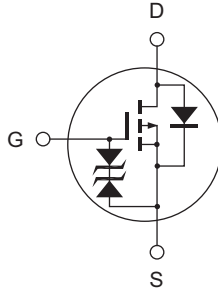


### Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source
- Suitable for switching regulator, DC-DC converter



### Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V <sub>DSS</sub>	-60	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-3	A
Drain peak current	I <sub>D (pulse)</sub>	-4	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-1	A
Channel dissipation	P <sub>ch</sub>	1	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

### Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	-60	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR) GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±5	μA	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	-10	μA	V <sub>DS</sub> = -50 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	-1.0	—	-2.25	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>DS (on)</sub>	—	0.15	0.17	Ω	I <sub>D</sub> = -0.5 A, V <sub>GS</sub> = -10 V <sup>Note 3</sup>
	R <sub>DS (on)</sub>	—	0.19	0.2	Ω	I <sub>D</sub> = -0.5 A, V <sub>GS</sub> = -4 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	0.6	1.0	—	S	I <sub>D</sub> = -0.5 A, V <sub>DS</sub> = -10 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	160	—	pF	V <sub>DS</sub> = -10 V
Output capacitance	C <sub>oss</sub>	—	80	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	28	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d (on)</sub>	—	7	—	ns	I <sub>D</sub> = -0.5 A
Rise time	t <sub>r</sub>	—	8	—	ns	V <sub>GS</sub> = -10 V
Turn-off delay time	t <sub>d (off)</sub>	—	30	—	ns	R <sub>L</sub> = 60 Ω
Fall time	t <sub>f</sub>	—	25	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	-1.1	—	V	I <sub>F</sub> = -1 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	90	—	ns	I <sub>F</sub> = -1 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 50 A/μs

**Main Characteristics**
