

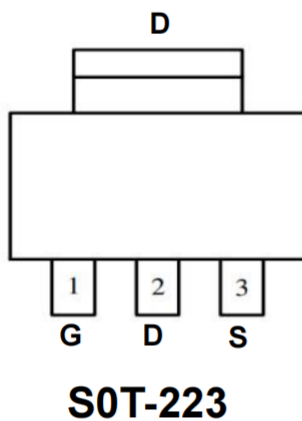
Product Summary

- V_{DS} 250 V
- I_{DS} 0.5A
- $R_{DS(ON)}$ (at $V_{GS}=10$) $\leq 2.6\Omega$ (Typ)
- Low Gate Charge Minimize Switching Loss

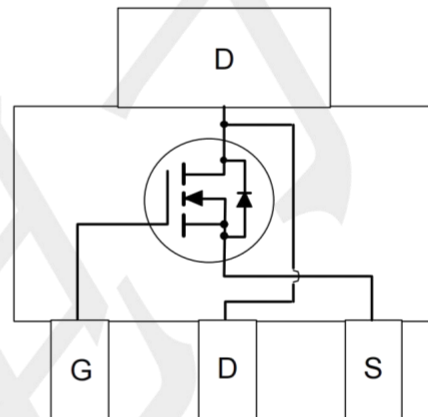
Application

- Adaptor
- Charger
- Power management
- SMPS Standby Power

Package and Pin Configuration



Circuit diagram



Absolute Maximum Ratings

($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Voltage	V_{DS}	250	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	0.5	A
Continuous Drain Current ($T_C=70^\circ\text{C}$)	I_D	0.4	A
Pulsed Drain Current (Note 1)	I_{DM}	1.5	A
Maximum Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	2	W
Operating Junction Temperature Range	T_J	+150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	63	$^\circ\text{C/W}$

Note : When mounted on 1" square PCB (FR4 material).

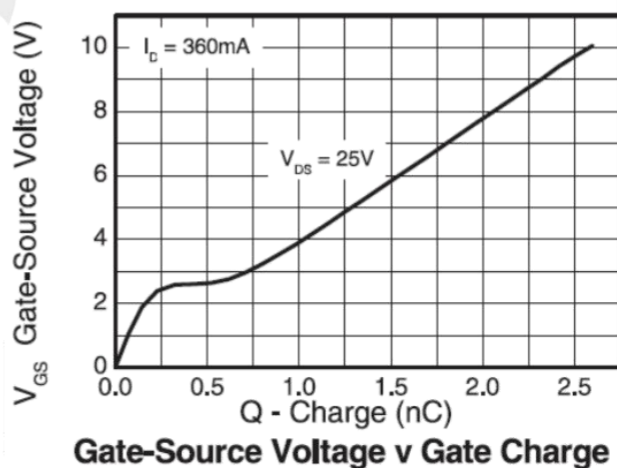
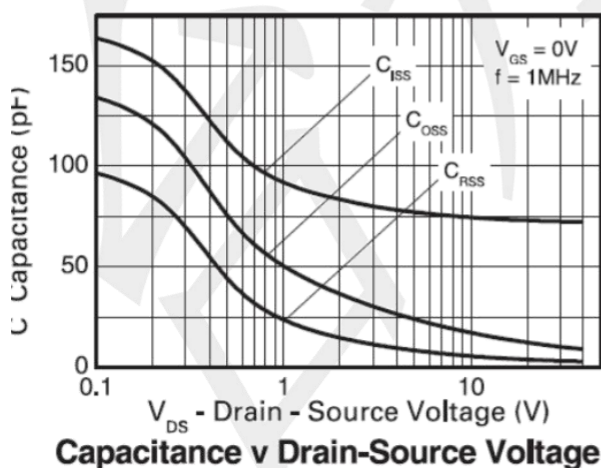
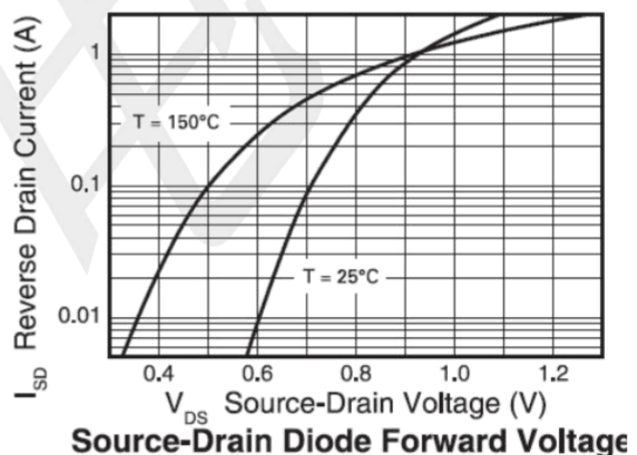
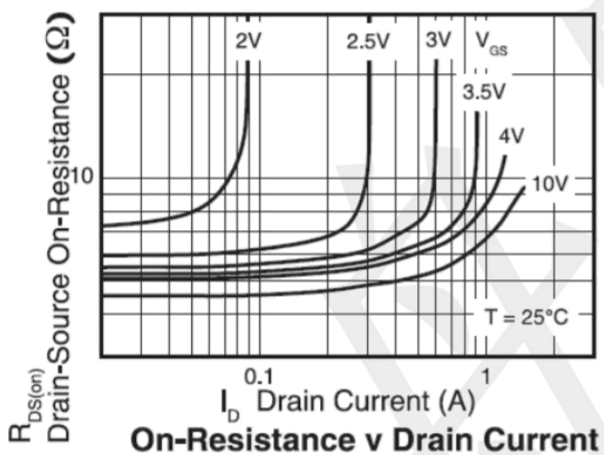
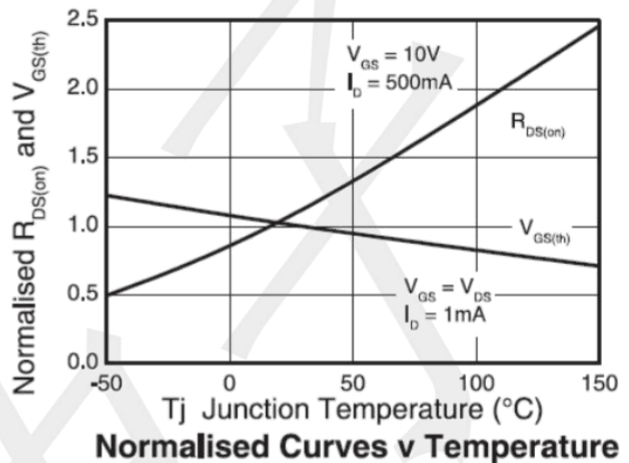
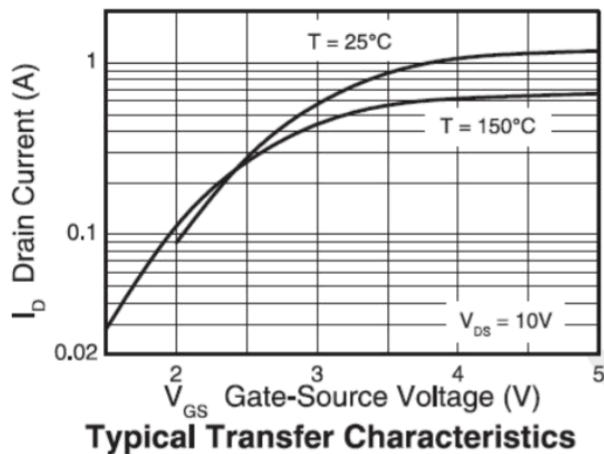
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	240	250	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.3	3.0	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}= \pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}= 200V, V_{GS}=0V$	I_{DSS}	--	--	0.6	μA
Drain-Source On-State Resistance	$V_{GS}= 10V, I_D= 0.5A$	$R_{DS(on)}$	--	2.6	3.5	Ω
	$V_{GS}= 4.5V, I_D= 0.5A$		--	3.0	4.5	
Forward Trans conductance	$V_{DS}=10V, I_D=0.5A$	g_{FS}	--	0.5	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}= 25V,$ $I_D=0.36A,$ $V_{GS}= 10V$	Q_g	--	2.6	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	0.2	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	0.5	--	
Input Capacitance	$V_{DS}= 25V, V_{GS}= 0V,$ $F= 1.0MHz$	C_{iss}	--	72	--	pF
Output Capacitance		C_{oss}	--	11	--	
Reverse Transfer Capacitance		C_{rss}	--	3.6	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}= 30V,$ $I_D= 0.36A,$ $V_{GS}= 10V,$ $R_G= 25\Omega$	$t_{d(on)}$	--	1.26	--	nS
Rise Time (Note 3)		t_r	--	1.71	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	11.4	--	
Fall Time (Note 3)		t_f	--	3.52	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS}= 0V, I_S= 0.5A$	V_{SD}	--	0.8	1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	0.5	A
Pulsed Current (Note 1)		I_{SM}	--	--	1.5	A

Notes:

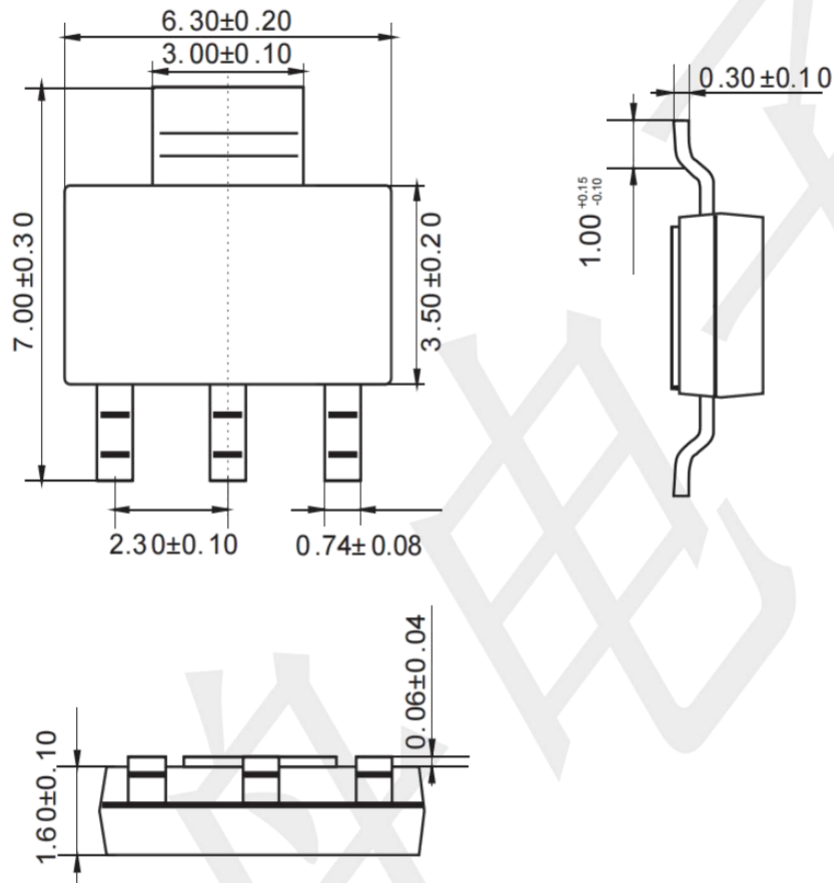
1. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 1\%$.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)



Package Outline Dimensions (unit: mm)

SOT-223



Mounting Pad Layout (unit: mm)

