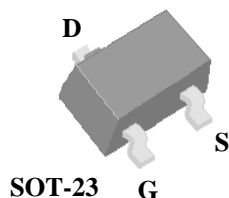


- ▼ Capable of 1.8V gate drive
- ▼ Simple Drive Requirement
- ▼ Surface mount package

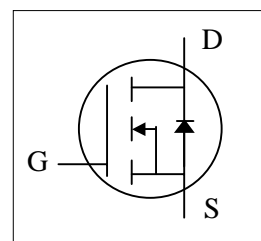


BV_{DSS}	20V
$R_{DS(ON)}$	90mΩ
I_D	2.5A

Description

Advanced Power MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The SOT-23 package is widely used for commercial-industrial applications.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±8	V
$I_D @ T_A=25^\circ C$	Continuous Drain Current ³ , V_{GS} @ 4.5V	2.5	A
$I_D @ T_A=70^\circ C$	Continuous Drain Current ³ , V_{GS} @ 4.5V	2.0	A
I_{DM}	Pulsed Drain Current ¹	10	A
$P_D @ T_A=25^\circ C$	Total Power Dissipation	0.833	W
	Linear Derating Factor	0.006	W/°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	150	°C/W

Electrical Characteristics @ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to $25^\circ\text{C}, I_D=1\text{mA}$	-	0.02	-	$V/^\circ\text{C}$
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=4.5V, I_D=1.6A$	-	-	90	$m\Omega$
		$V_{GS}=2.5V, I_D=1A$	-	-	120	$m\Omega$
		$V_{GS}=1.8V, I_D=0.3A$	-	-	150	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=1\text{mA}$	0.3	-	1	V
g_{fs}	Forward Transconductance	$V_{DS}=5V, I_D=2A$	-	2	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
I_{GSS}	Gate-Source Leakage	$V_{GS}=\pm 8V$	-	-	± 100	nA
Q_g	Total Gate Charge ²	$I_D=2.2A$	-	7	11	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=16V$	-	0.7	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=4.5V$	-	2.5	-	nC
$t_{d(on)}$	Turn-on Delay Time ²	$V_{DS}=10V$	-	6	-	ns
t_r	Rise Time	$I_D=1A$	-	12	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=3.3\Omega, V_{GS}=5V$	-	16	-	ns
t_f	Fall Time	$R_D=10\Omega$	-	4	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	350	560	pF
C_{oss}	Output Capacitance	$V_{DS}=20V$	-	55	-	pF
C_{rss}	Reverse Transfer Capacitance	$f=1.0\text{MHz}$	-	48	-	pF
R_g	Gate Resistance	$f=1.0\text{MHz}$	-	3.2	4.8	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_S=0.7A, V_{GS}=0V$	-	-	1.2	V
t_{rr}	Reverse Recovery Time ²	$I_S=2A, V_{GS}=0V,$	-	20	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$	-	13	-	nC

Notes:

1. Pulse width limited by Max. junction temperature.

2. Pulse test

3. Surface mounted on 1 in² copper pad of FR4 board, $t \leq 10\text{sec}$; 360°C/W when mounted on Min. copper pad.