

STS2301

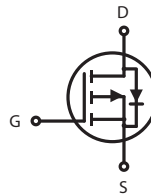
PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
-20V	-3.4A	60 @ V _{GS} = -4.5V
		80 @ V _{GS} = -2.5V
		105 @ V _{GS} = -1.8V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- SOT-23 package.

SOT-23



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Drain Current-Continuous ^a @ T _J =125°C -Pulsed ^b	I _D	-3.4	A
	I _{DM}	-12	A
Drain-Source Diode Forward Current ^a	I _S	-1.25	A
Maximum Power Dissipation ^a	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R _{thJA}	100	°C/W
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ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ± 10V, V _{DS} = 0V			±100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-0.6	-0.85	-1.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -4.0A		50	60	m-ohm
		V _{GS} = -2.5V, I _D = -2.0A		70	80	m-ohm
		V _{GS} = -1.8V, I _D = -1.0A		95	105	m-ohm
On-State Drain Current	I _{D(ON)}	V _{DS} = -5V, V _{GS} = -4.5V	-20			A
Forward Transconductance	g _{FS}	V _{DS} = -5V, I _D = -5A	5			S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = -15V, V _{GS} = 0V f = 1.0MHz		926		pF
Output Capacitance	C _{OSS}			183		pF
Reverse Transfer Capacitance	C _{RSS}			141		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -10V, I _D = -1A, V _{GS} = -4.5V, R _L = 10 ohm R _{GEN} = 6 ohm		13.9		ns
Rise Time	t _r			17.6		ns
Turn-Off Delay Time	t _{D(OFF)}			87.7		ns
Fall Time	t _f			53.9		ns
Total Gate Charge	Q _g	V _{DS} = -10V, I _D = -3A, V _{GS} = -4.5V		11.9		nC
Gate-Source Charge	Q _{gs}			1.96		nC
Gate-Drain Charge	Q _{gd}			3.49		nC

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

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_s = -1.25A$		-0.795	-1.2	V

Notes

- a. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
- b. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- c. Guaranteed by design, not subject to production testing.