

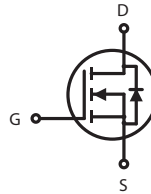
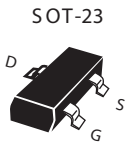
STS 2302S

PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
20V	4A	47 @ V _{GS} = 4.5V 60 @ V _{GS} = 2.5V

FEATURES

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



ABSOLUTE MAXIMUM RATING (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 @ T _J =25°C -Pulsed ^b	I _D	4	A
	I _{DM}	15	A
Drain-Source Diode Forward Current	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 (T_A = 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 = 250µA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	µA
Gate-Body Leakage	I _{GSS}	V _{GS} = ± 12V, V _{DS} = 0V			±100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250µA	0.5	0.8	1.3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 4A		40	47	m-ohm
		V _{GS} = 2.5V, I _D = 2A		55	60	m-ohm
On-State Drain Current	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 4.5V	6			A
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 3.8A		19		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V f = 1.0MHz		495		pF
Output Capacitance	C _{OSS}			88		pF
Reverse Transfer Capacitance	C _{RSS}			65		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 10V, I _D = 1A, V _{GS} = 4.5V, R _{GEN} = 6 ohm		12		ns
Rise Time	t _r			13		ns
Turn-Off Delay Time	t _{D(OFF)}			44		ns
Fall Time	t _f			18		ns
Total Gate Charge	Q _g	V _{DS} = 10V, I _D = 4A, V _{GS} = 4.5V		6.8		nC
Gate-Source Charge	Q _{gs}			1.5		nC
Gate-Drain Charge	Q _{gd}			3		nC

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_s = 1.25A$		0.87	1.2	V

Notes

- Surface mounted on FR-4 board, $t \leq 10$ sec
- Pulse Test:Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.