

STS3400

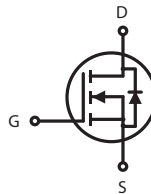
PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
30V	3.5A	50 @ V _{GS} = 10V
		70 @ V _{GS} = 4.5V

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}	30	V
Gate-Source Voltage	V _{GS}	± 20	V
Drain Current-Continuous ^a @ T _J =25°C -Pulsed ^b	I _D	3.5	A
	I _{DM}	13	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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.7	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 3.5A$		40	50	m-ohm
		$V_{GS} = 4.5V, I_D = 2A$		55	70	m-ohm
On-State Drain Current	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	10			A
Forward Transconductance	g_{FS}	$V_{DS} = 5V, I_D = 3.5A$		6		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C_{ISS}	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1.0MHz$		600		pF
Output Capacitance	C_{OSS}			125		pF
Reverse Transfer Capacitance	C_{RSS}			95		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 10V,$ $I_D = 1A,$ $V_{GS} = 10V,$ $R_L = 10\text{ ohm}$ $R_{GEN} = 6\text{ ohm}$		14.2		ns
Rise Time	t_r			4.8		ns
Turn-Off Delay Time	$t_{D(OFF)}$			19.6		ns
Fall Time	t_f			9.3		ns
Total Gate Charge	Q_g				6.8	
Gate-Source Charge	Q_{gs}	$V_{DS} = 10V, I_D = 3.5A,$ $V_{GS} = 4.5V$		3.1		nC
Gate-Drain Charge	Q_{gd}			1.95		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}	$V_{GS} = 0V, I_s = 1.25A$		0.82	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.