

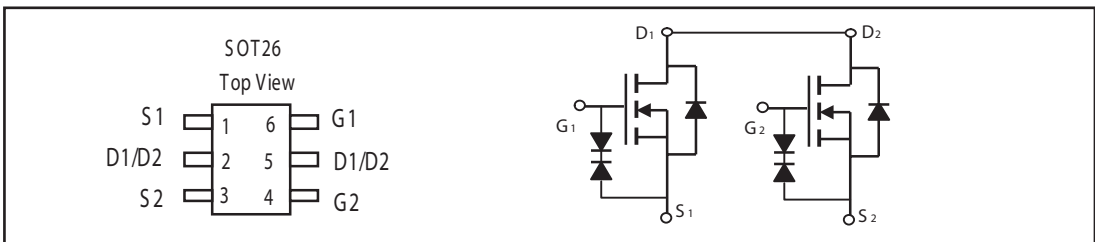
# STS8215

## PRODUCT SUMMARY

V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> ( mΩ ) Max
20V	5A	27.5 @ V <sub>GS</sub> = 4.0V 38 @ V <sub>GS</sub> = 2.5V

## FEATURES

- Super high dense cell design for low R<sub>DS(ON)</sub>.
- Rugged and reliable.
- Surface Mount Package.
- ESD Protected.



## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	±20	V
Gate-Source Voltage	V <sub>GS</sub>	±10	V
Drain Current-Continuous <sup>a</sup> @ T <sub>J</sub> =25°C -Pulsed <sup>b</sup>	I <sub>D</sub>	5	A
	I <sub>DM</sub>	24	A
Drain-Source Diode Forward Current <sup>a</sup>	I <sub>S</sub>	1.25	A
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	1.25	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to 150	°C

## THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient <sup>a</sup>	R <sub>θJA</sub>	100	°C/W
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ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ <sup>c</sup>	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250uA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V			1	uA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V			±10	uA
<b>ON CHARACTERISTICS<sup>b</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	0.5	0.9	1.5	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.0V, I <sub>D</sub> = 5A		23	27.5	m ohm
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 3A		30	38	m ohm
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 5.0V, I <sub>D</sub> = 5A		16		S
<b>DYNAMIC CHARACTERISTICS<sup>c</sup></b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = 8V, V <sub>GS</sub> = 0V f = 1.0MHz		540		pF
Output Capacitance	C <sub>OSS</sub>			160		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			100		pF
<b>SWITCHING CHARACTERISTICS<sup>c</sup></b>						
Turn-On Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> = 10V, I <sub>D</sub> = 1A, V <sub>GEN</sub> = 4.5V, R <sub>L</sub> = 10 ohm R <sub>GEN</sub> = 10 ohm		15		ns
Rise Time	t <sub>r</sub>			20		ns
Turn-Off Delay Time	t <sub>D(OFF)</sub>			36		ns
Fall Time	t <sub>f</sub>			11		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 5A, V <sub>GS</sub> = 4V		6.4		nC
		V <sub>DS</sub> = 10V, I <sub>D</sub> = 5A, V <sub>GS</sub> = 2.5V		4.6		nC
Gate-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 5 A		1.1		nC
Gate-Drain Charge	Q <sub>gd</sub>	V <sub>GS</sub> = 4V		2.8		nC

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

Parameter	Symbol	Condition	Min	Typ <sup>c</sup>	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS <sup>b</sup>						
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_s = 1.25A$		0.76	1.2	V

## Notes

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