



# Si5915DC

## Vishay Siliconix

### Dual P-Channel 1.8-V (G-S) MOSFET

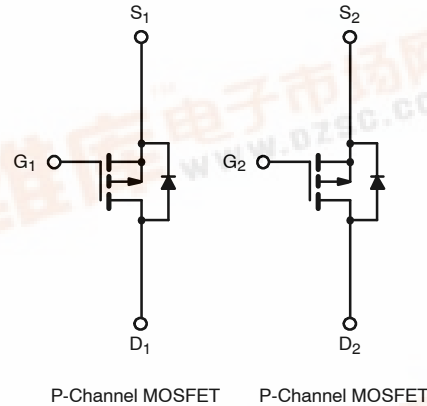
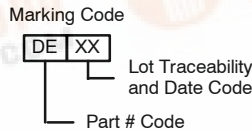
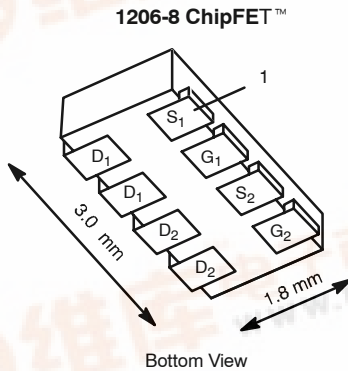
PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
-8	0.070 @ V <sub>GS</sub> = -4.5 V	-4.6
	0.108 @ V <sub>GS</sub> = -2.5 V	-3.7
	0.162 @ V <sub>GS</sub> = -1.8 V	-3.0

#### FEATURES

- TrenchFET® Power MOSFET
- Low Thermal Resistance
- 40% Smaller Footprint Than TSOP-6

#### APPLICATIONS

- Load Switch or PA Switch for Portable Devices



Ordering Information: Si5915DC-T1

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage	V <sub>DS</sub>	-8		V	
Gate-Source Voltage	V <sub>GS</sub>	±8			
Continuous Drain Current (T <sub>J</sub> = 150°C) <sup>a</sup>	I <sub>D</sub>	T <sub>A</sub> = 25°C	-4.6	-3.4	A
		T <sub>A</sub> = 85°C	-3.3	-2.5	
Pulsed Drain Current	I <sub>DM</sub>	-10			
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	-1.8	-0.9		
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25°C	2.1	1.1	W
		T <sub>A</sub> = 85°C	1.1	0.6	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C	
Soldering Recommendations (Peak Temperature) <sup>b, c</sup>		260			

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	t ≤ 5 sec	50	60	°C/W
		Steady State	90	110	
Maximum Junction-to-Foot (Drain)	R <sub>thJF</sub>	30	40		

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- See Reliability Manual for profile. The ChipFET is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.
- Reflow Conditions: manual soldering with a soldering iron is not recommended for leadless components.

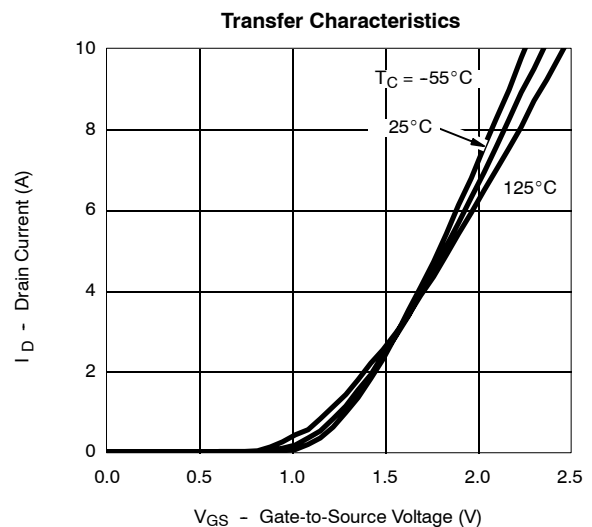
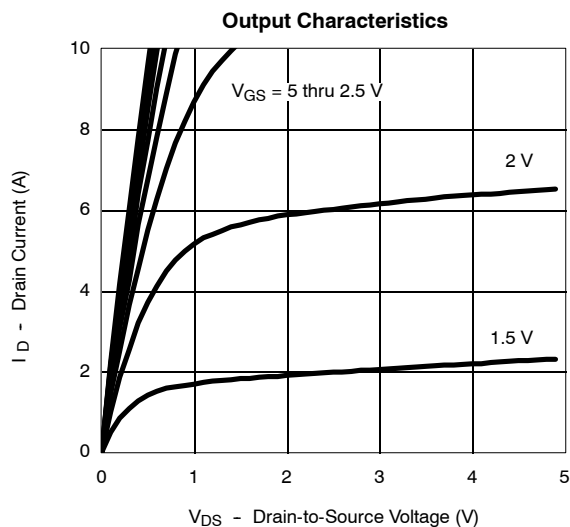


<b>SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)</b>						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-0.45			V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -6.4 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -6.4 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 85 °C			-5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≤ -5 V, V <sub>GS</sub> = -4.5 V	-10			A
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -3.4 A		0.058	0.070	Ω
		V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -2.7 A		0.090	0.108	
		V <sub>GS</sub> = -1.8 V, I <sub>D</sub> = -1 A		0.131	0.162	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5 V, I <sub>D</sub> = -3.4 A		8		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = -0.9 A, V <sub>GS</sub> = 0 V		-0.8	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -4 V, V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -3.4 A		5.9	9	nC
Gate-Source Charge	Q <sub>gs</sub>			1.3		
Gate-Drain Charge	Q <sub>gd</sub>			1.4		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -4 V, R <sub>L</sub> = 4 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -4.5 V, R <sub>G</sub> = 6 Ω		20	30	ns
Rise Time	t <sub>r</sub>			70	110	
Turn-Off Delay Time	t <sub>d(off)</sub>			35	55	
Fall Time	t <sub>f</sub>			35	55	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> = -0.9 A, di/dt = 100 A/μs		30	

Notes

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

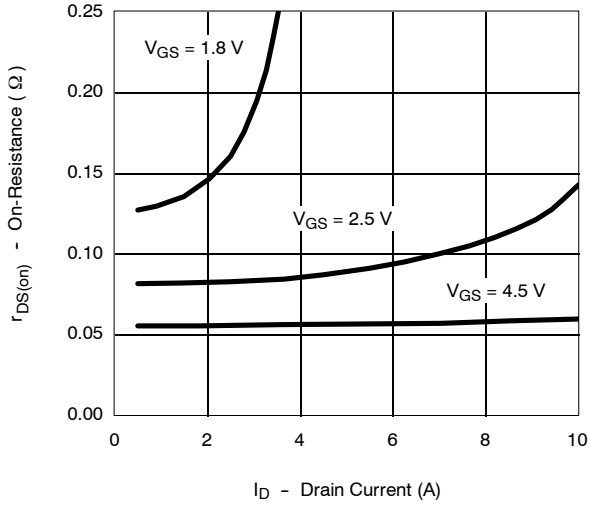
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**



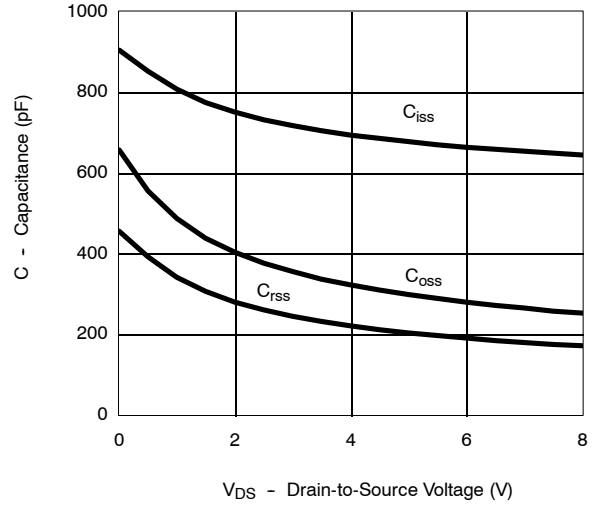


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

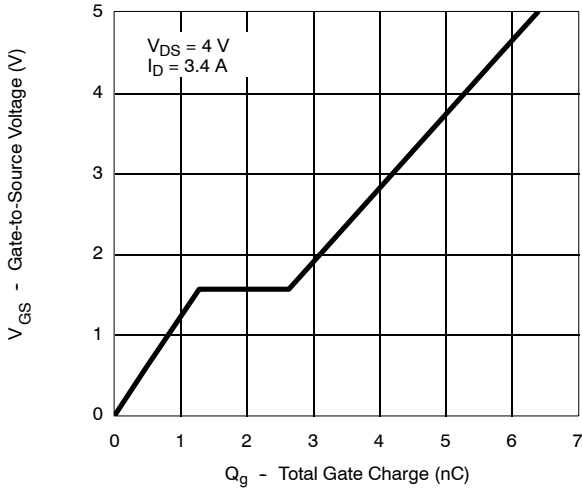
**On-Resistance vs. Drain Current**



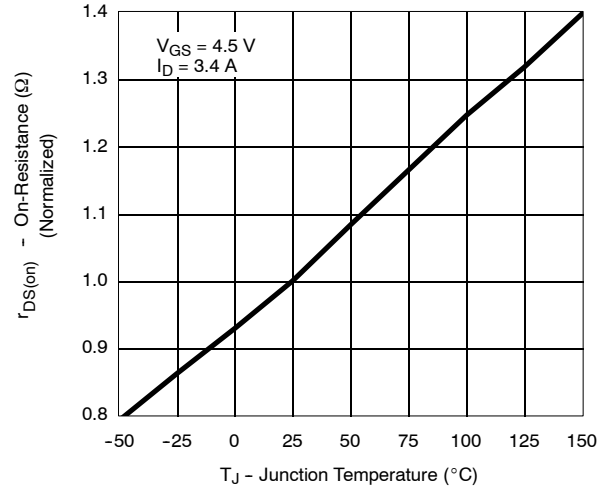
**Capacitance**



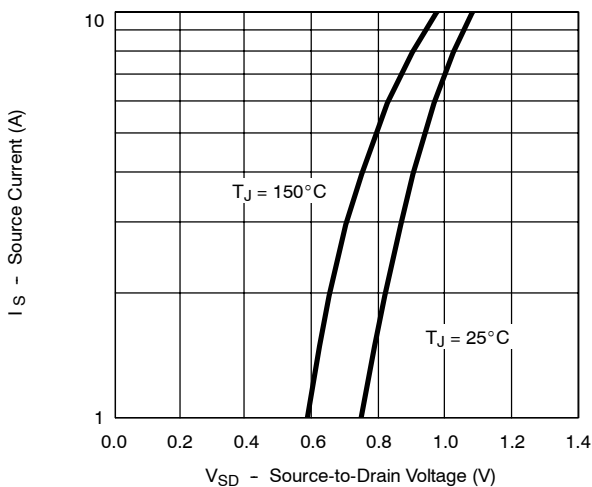
**Gate Charge**



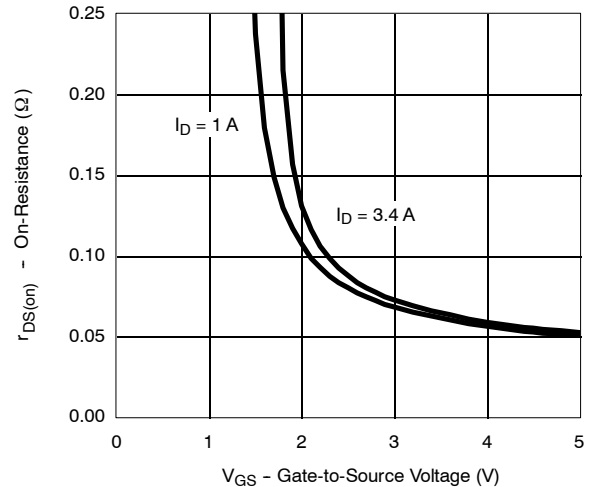
**On-Resistance vs. Junction Temperature**



**Source-Drain Diode Forward Voltage**



**On-Resistance vs. Gate-to-Source Voltage**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

