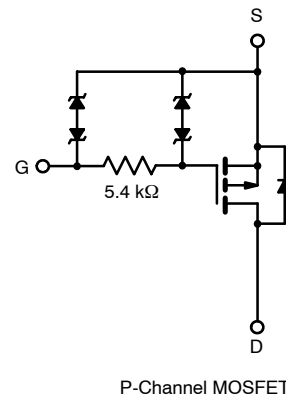
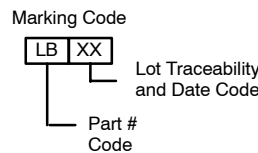
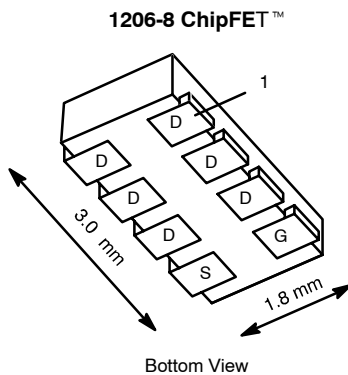




## P-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
-20	0.062 @ V <sub>GS</sub> = -4.5 V	-5.1
	0.068 @ V <sub>GS</sub> = -3.6 V	-4.9
	0.085 @ V <sub>GS</sub> = -2.5 V	-4.4
	0.120 @ V <sub>GS</sub> = -1.8 V	-3.7



Ordering Information: Si5463EDC-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>	-20		V
Gate-Source Voltage	V <sub>GS</sub>	±12		
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	I <sub>D</sub>	T <sub>A</sub> = 25 °C	-5.1	A
		T <sub>A</sub> = 85 °C	-3.7	
Pulsed Drain Current	I <sub>DM</sub>	-15		A
Continuous Source Current <sup>a</sup>	I <sub>S</sub>	-1.9	-1.0	
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25 °C	2.3	W
		T <sub>A</sub> = 85 °C	1.2	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C
Soldering Recommendations (Peak Temperature) <sup>c, d</sup>		260		

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	t ≤ 5 sec	45	°C/W
		Steady State	84	
Maximum Junction-to-Foot (Drain)	R <sub>thJF</sub>	20	25	°C/W

Notes

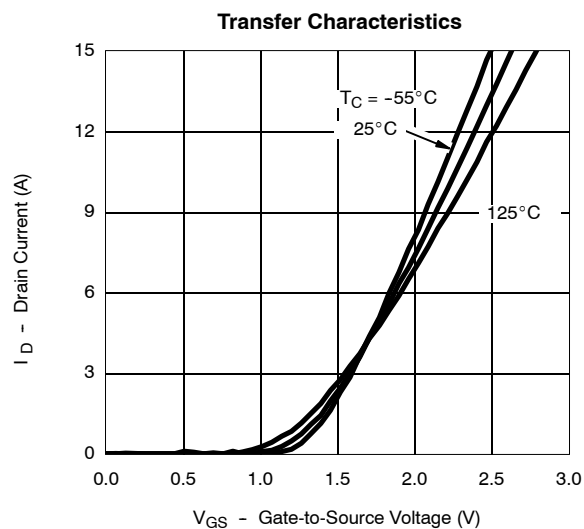
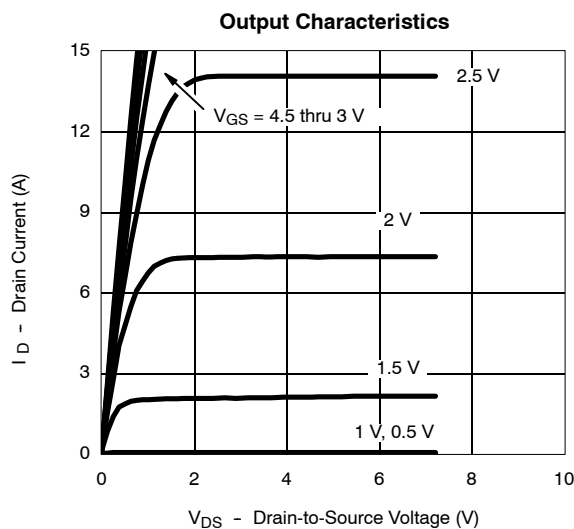
- Surface Mounted on 1" x 1" FR4 Board.
- When using HBM. The MM rating is 300 V
- See Reliability Manual for profile. The ChipFET is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.
- Rework Conditions: manual soldering with a soldering iron is not recommended for leadless components.

**SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)**

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> = ±4.5 V			±1.5	μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -16 V, V <sub>GS</sub> = 0 V			-1	
		V <sub>DS</sub> = -16 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	-15			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> = -4.0 A		0.051	0.062	Ω
		V <sub>GS</sub> = -3.6 V, I <sub>D</sub> = -3.5 A		0.056	0.068	
		V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -3.0 A		0.070	0.085	
		V <sub>GS</sub> = -1.8 V, I <sub>D</sub> = -1.5 A		0.100	0.120	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5 V, I <sub>D</sub> = -4.0 A		10		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = -1.0 A, V <sub>GS</sub> = 0 V		-0.75	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -10 V, V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -4.0 A		9.7	15	nC
Gate-Source Charge	Q <sub>gs</sub>			2.7		
Gate-Drain Charge	Q <sub>gd</sub>			1.4		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -10 V, R <sub>L</sub> = 10 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -4.5 V, R <sub>G</sub> = 6 Ω		1.85	2.5	μs
Rise Time	t <sub>r</sub>			3.2	4.5	
Turn-Off Delay Time	t <sub>d(off)</sub>			1.9	2.5	
Fall Time	t <sub>f</sub>			3.2	4.5	

## Notes

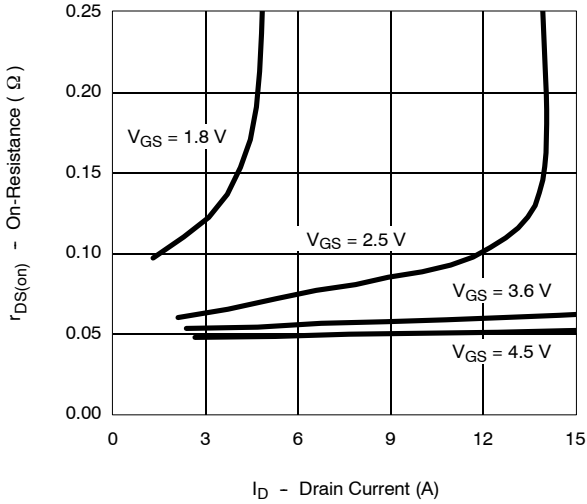
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.  
b. Guaranteed by design, not subject to production testing.

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

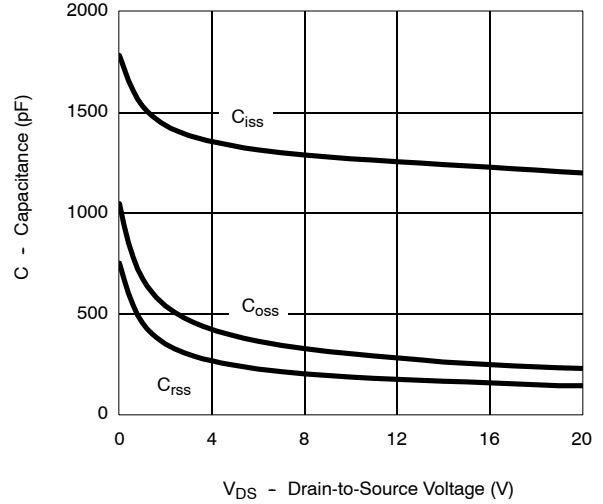


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

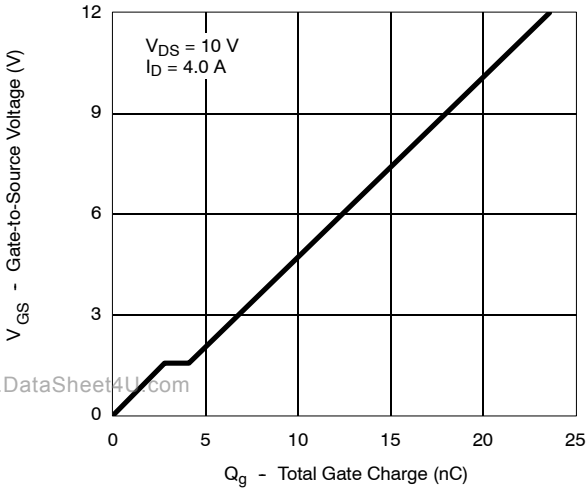
**On-Resistance vs. Drain Current**



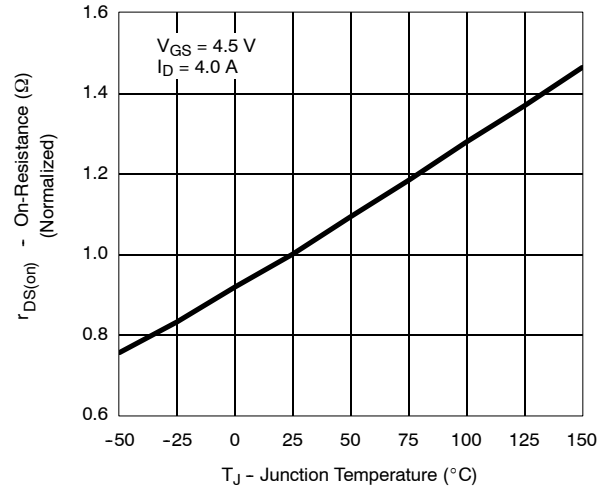
**Capacitance**



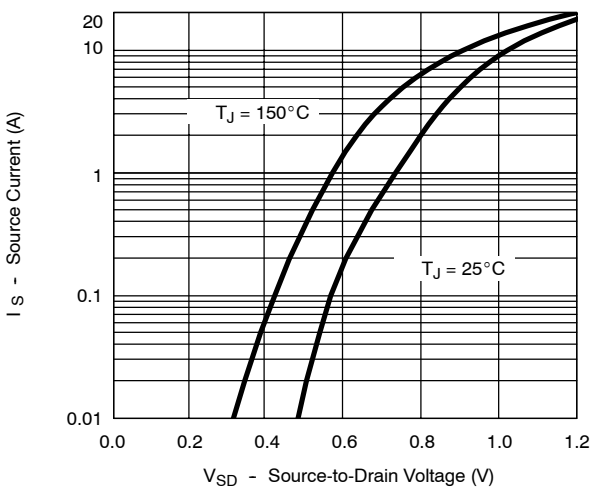
**Gate Charge**



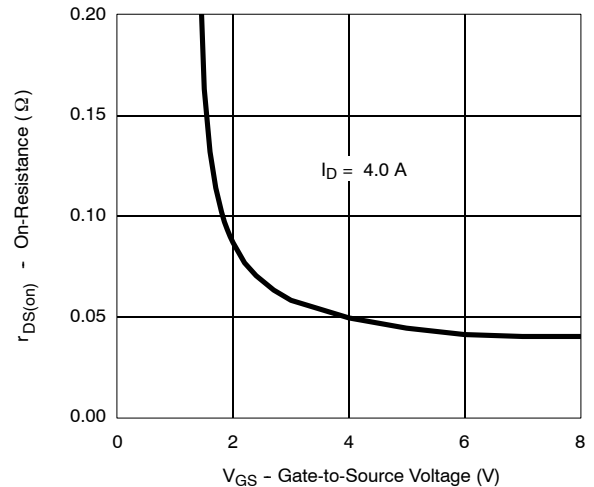
**On-Resistance vs. Junction Temperature**



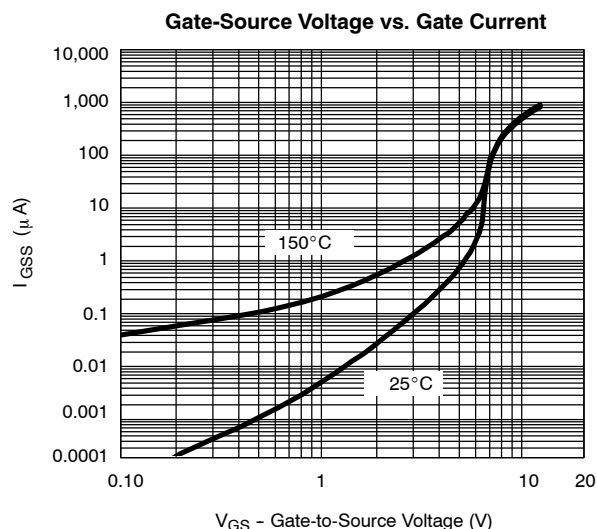
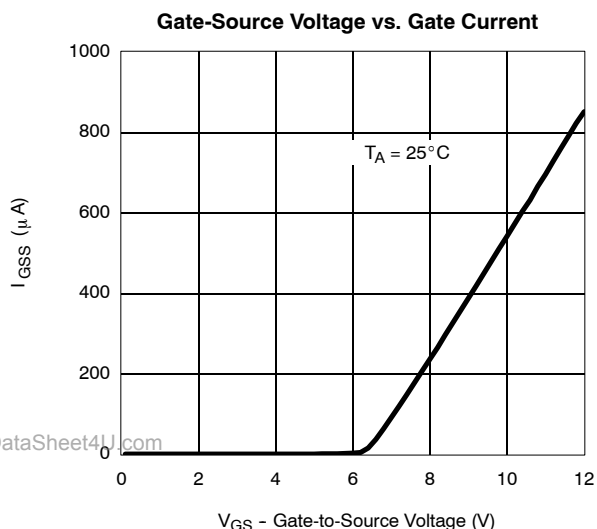
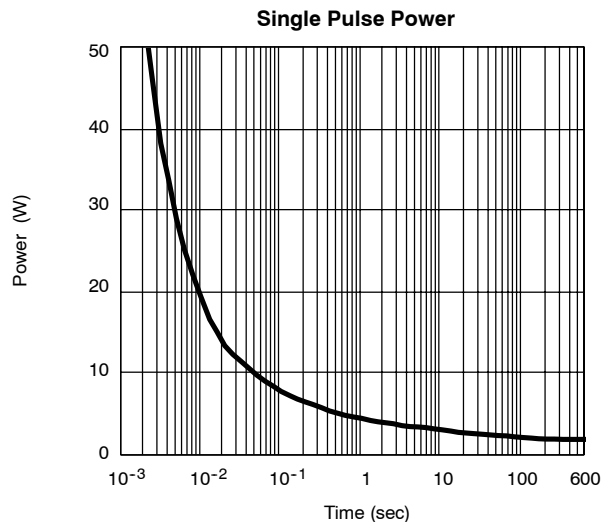
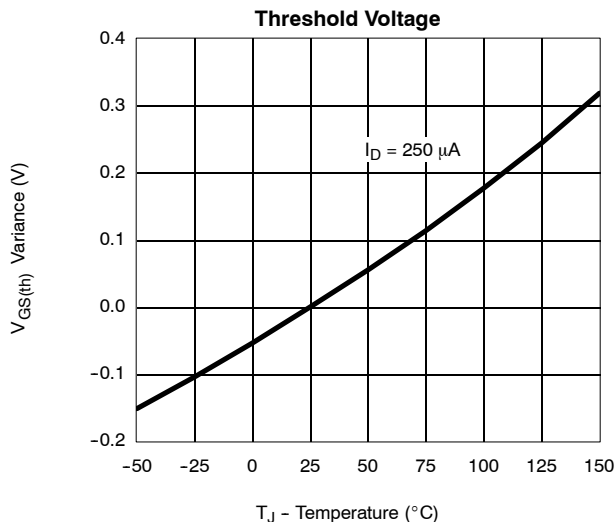
**Source-Drain Diode Forward Voltage**



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

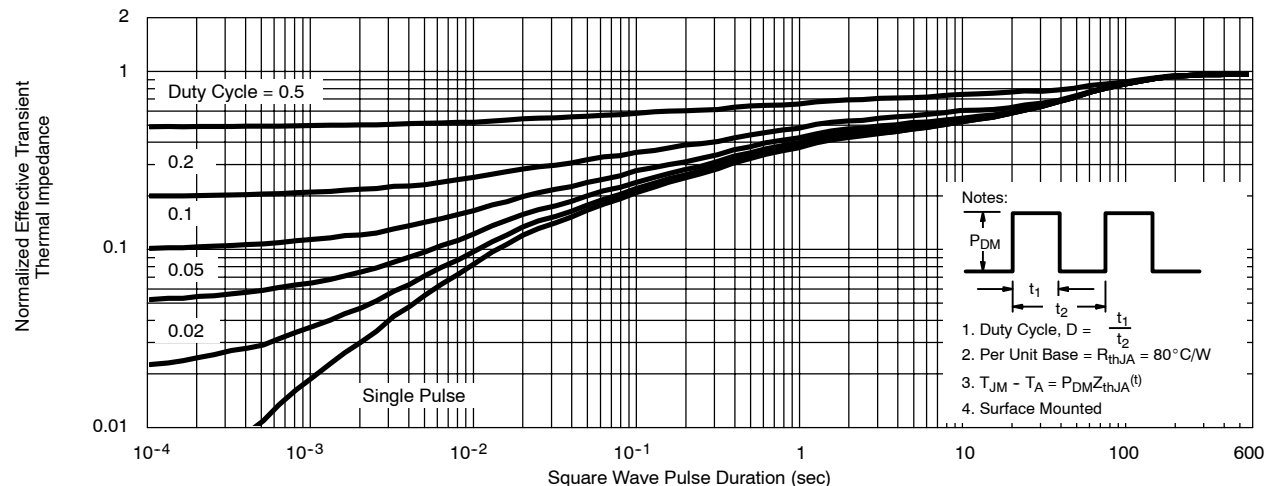


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



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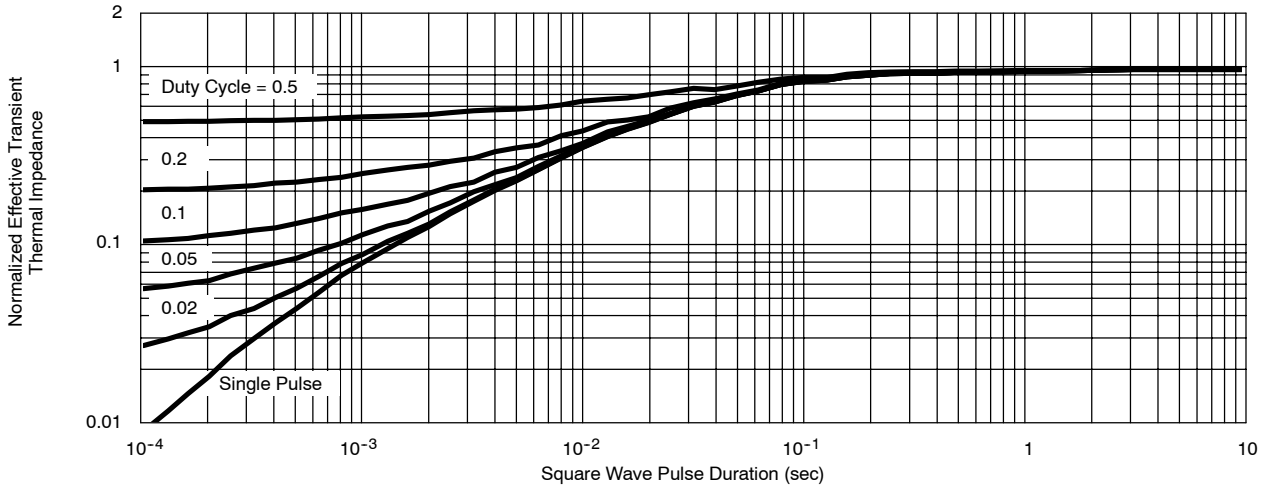
**Normalized Thermal Transient Impedance, Junction-to-Ambient**





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

Normalized Thermal Transient Impedance, Junction-to-Foot





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