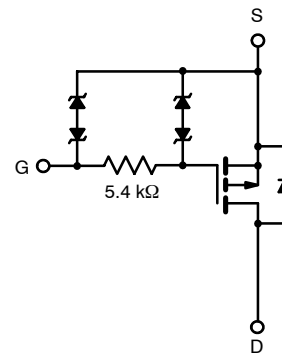
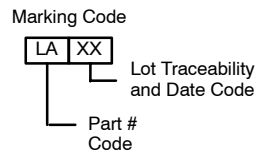
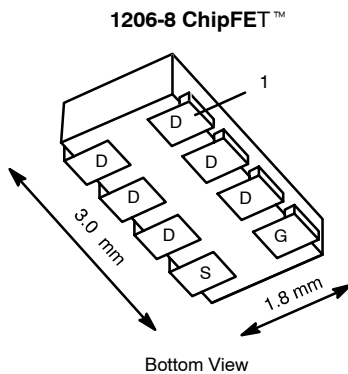




P-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.045 @ $V_{GS} = -4.5$ V	-6.2
	0.060 @ $V_{GS} = -2.5$ V	-5.4
	0.082 @ $V_{GS} = -1.8$ V	-4.6



P-Channel MOSFET

Ordering Information: Si5461EDC-T1

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-6.2	-4.5	A
	$T_A = 85^\circ\text{C}$		-4.5	-3.2	
Pulsed Drain Current		I_{DM}	-20		
Continuous Source Current ^a		I_S	-2.1	-1.1	
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2.5	1.3	W
	$T_A = 85^\circ\text{C}$		1.3	0.7	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		$^\circ\text{C}$
Soldering Recommendations (Peak Temperature) ^{c, d}			260		

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}	40	50	$^\circ\text{C/W}$
	Steady State		80	95	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	15	20	

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.



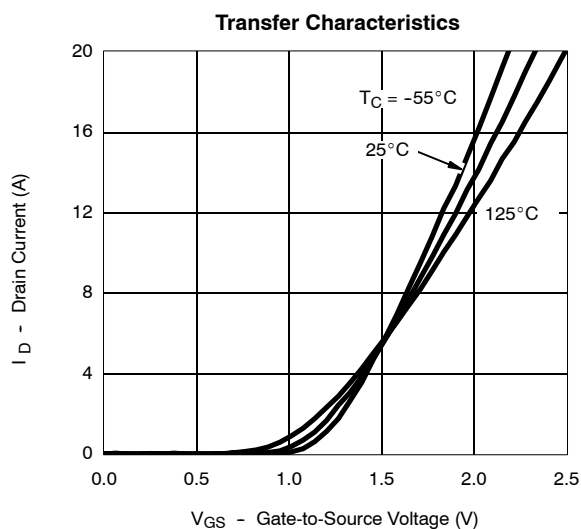
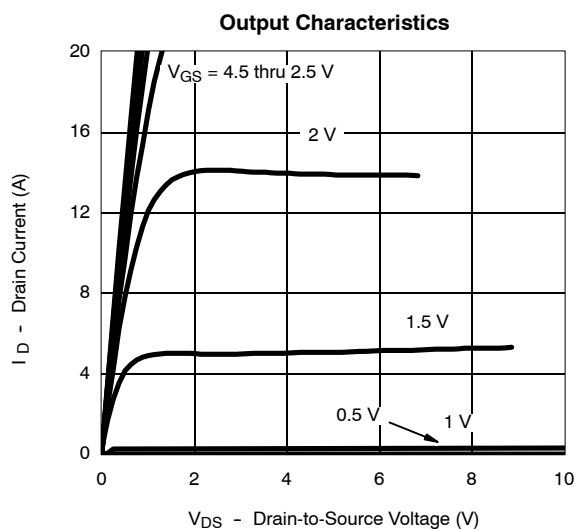
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±4.5 V			±1.5	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16 V, V _{GS} = 0 V			-1	
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 85 °C			-5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ -5 V, V _{GS} = -4.5 V	-20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -5.0 A		0.037	0.045	Ω
		V _{GS} = -2.5 V, I _D = -4.0 A		0.050	0.060	
		V _{GS} = -1.8 V, I _D = -2 A		0.066	0.082	
Forward Transconductance ^a	g _{fs}	V _{DS} = -5 V, I _D = -5.0 A		12		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.1 A, V _{GS} = 0 V		-0.7	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -5.0 A		12.5	20	nC
Gate-Source Charge	Q _{gs}			2.0		
Gate-Drain Charge	Q _{gd}			4.0		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		2.5	3.5	μS
Rise Time	t _r			4.5	8.0	
Turn-Off Delay Time	t _{d(off)}			27	40	
Fall Time	t _f			15	25	

Notes

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

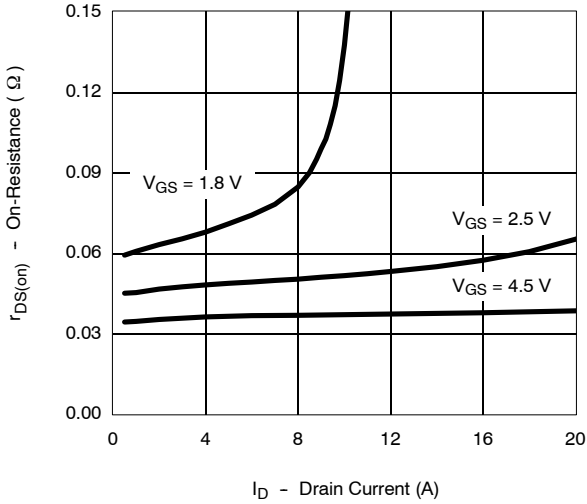
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



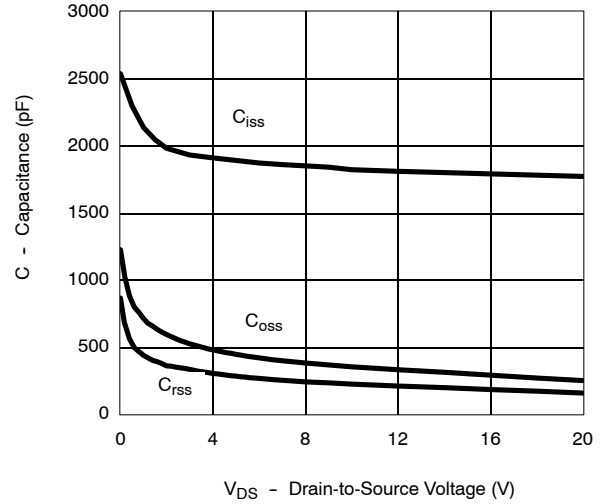


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

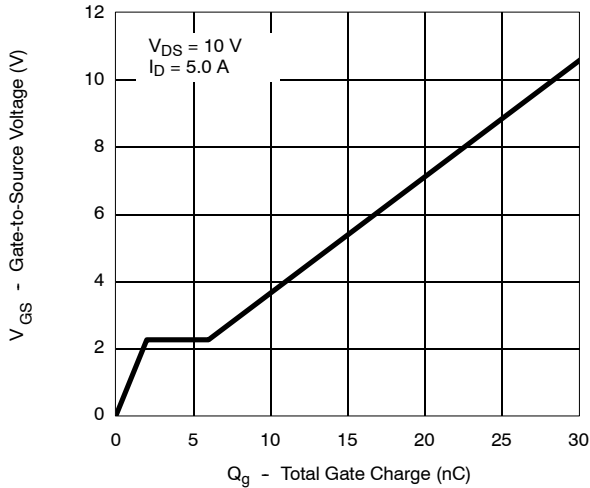
On-Resistance vs. Drain Current



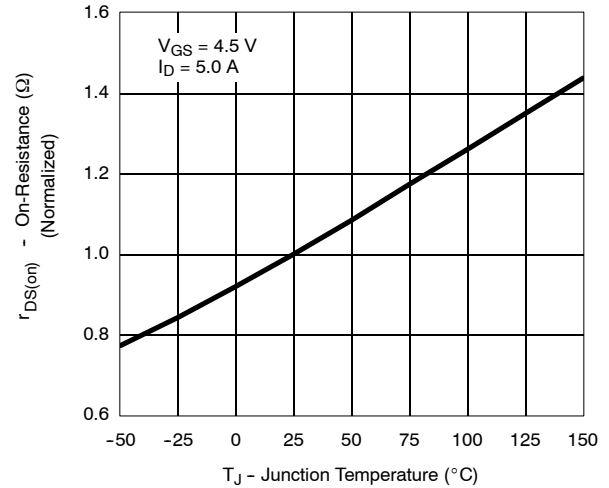
Capacitance



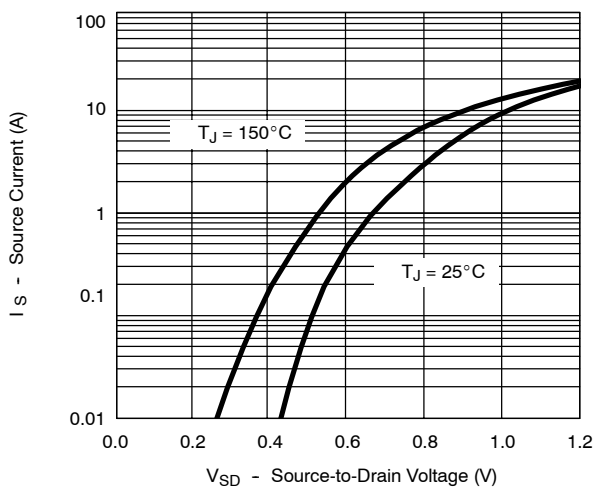
Gate Charge



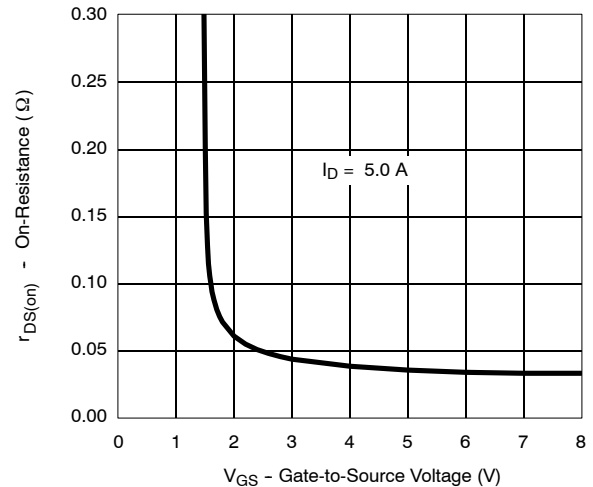
On-Resistance vs. Junction Temperature



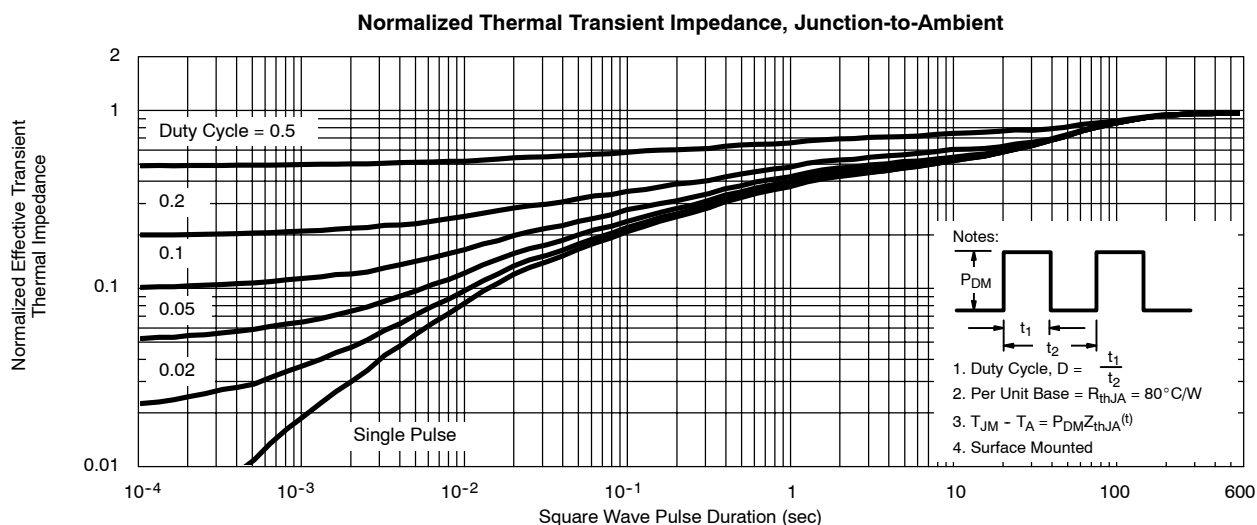
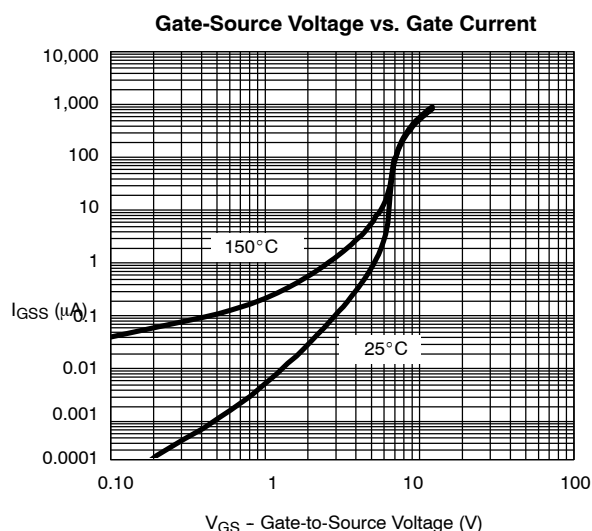
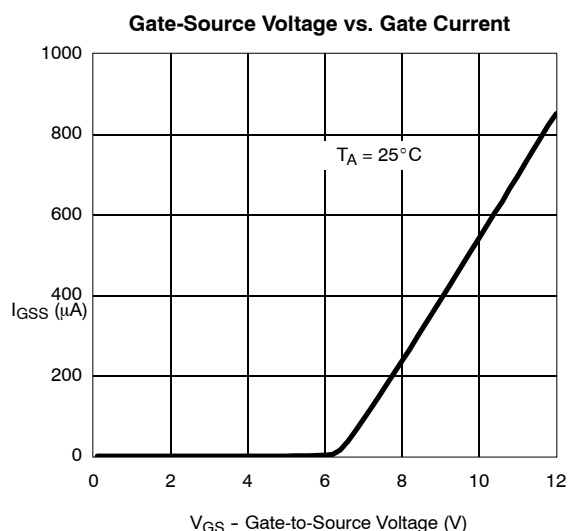
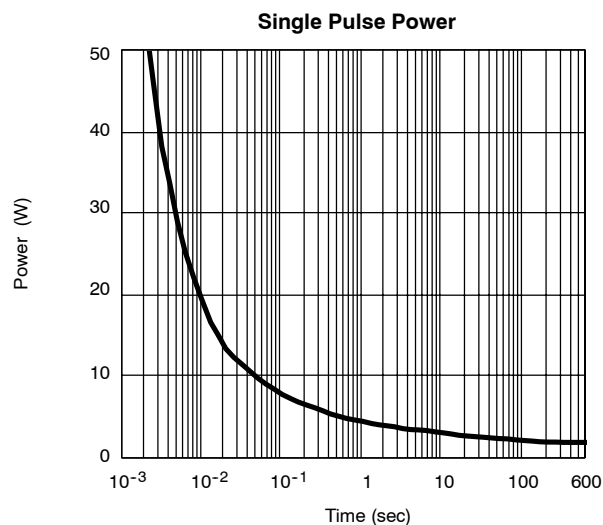
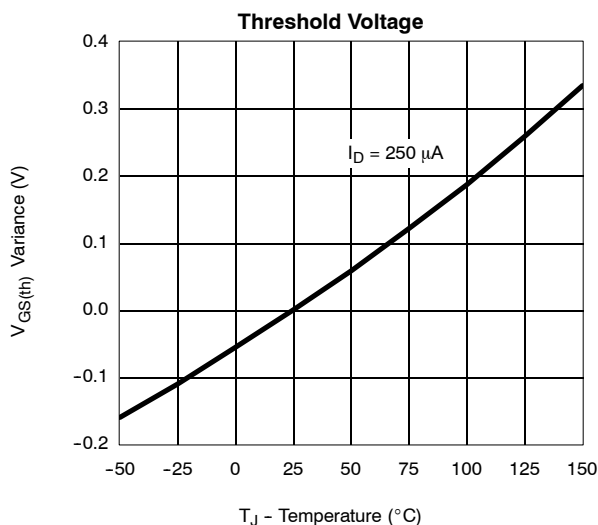
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

