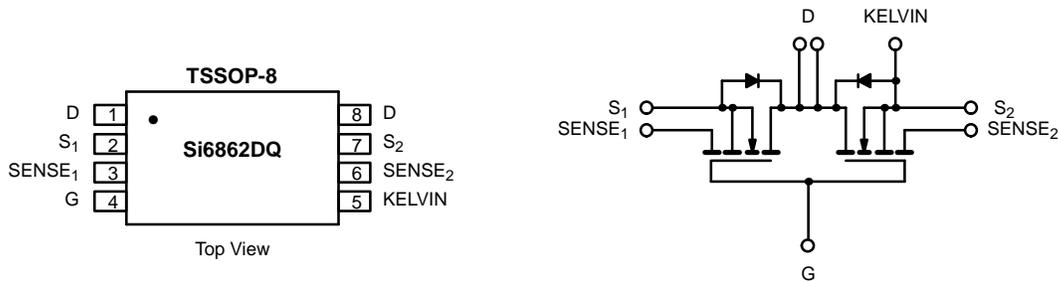




Dual N-Channel 20-V (D-S) MOSFET with Current Sense

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.026 @ $V_{GS} = 4.5$ V	6.6
	0.036 @ $V_{GS} = 2.5$ V	5.6

TrenchFET[®]
Power MOSFETs



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 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	I_D	$T_A = 25^\circ\text{C}$	6.6	5.2	A
		$T_A = 70^\circ\text{C}$	5.2	4.2	
Pulsed Drain Current (10 μs Pulse Width)	I_{DM}	30			
Continuous Source Current (Diode Conduction) ^a	I_S	1.5	0.9	W	
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	1.8		1.1
		$T_A = 70^\circ\text{C}$	1.1	0.7	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	R_{thJA}	$t \leq 10$ sec	55	70	$^\circ\text{C/W}$
		Steady State	93	110	
Maximum Junction-to-Foot	R_{thJF}	36	45		

Notes

a. Surface Mounted on 1" x 1" FR4 Board.



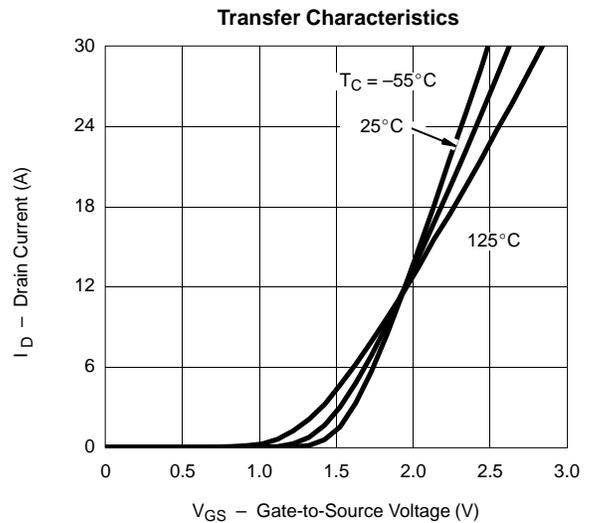
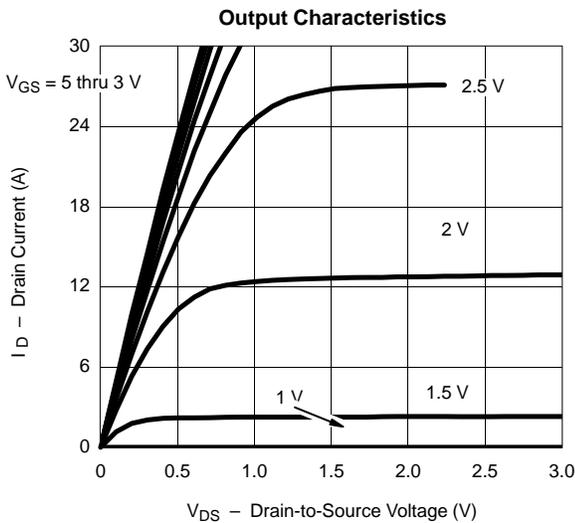
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V			1	μA
		V _{DS} = 16 V, V _{GS} = 0 V, T _J = 70 °C			5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 5.2 A		0.022	0.026	Ω
		V _{GS} = 2.5 V, I _D = 4.4 A		0.029	0.036	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 5.2 A		23		S
Diode Forward Voltage ^a	V _{SD}	I _S = 0.9 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 5.2 A		25	40	nC
Gate-Source Charge	Q _{gs}			3.7		
Gate-Drain Charge	Q _{gd}			8.1		
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		25	50	ns
Rise Time	t _r			40	80	
Turn-Off Delay Time	t _{d(off)}			80	160	
Fall Time	t _f			45	90	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 0.9 A, di/dt = 100 A/μs		40	80	

Notes

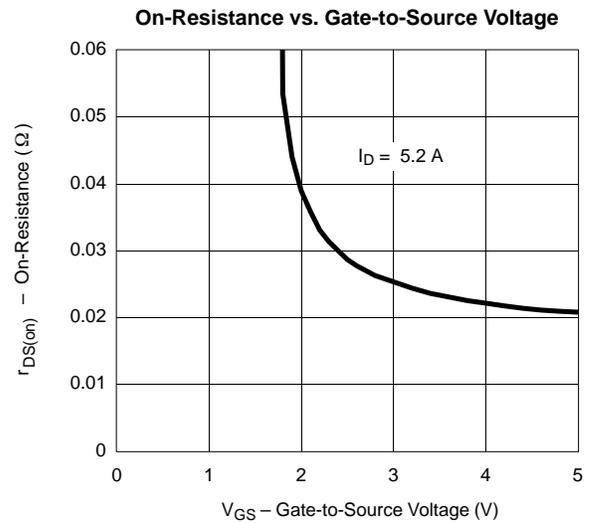
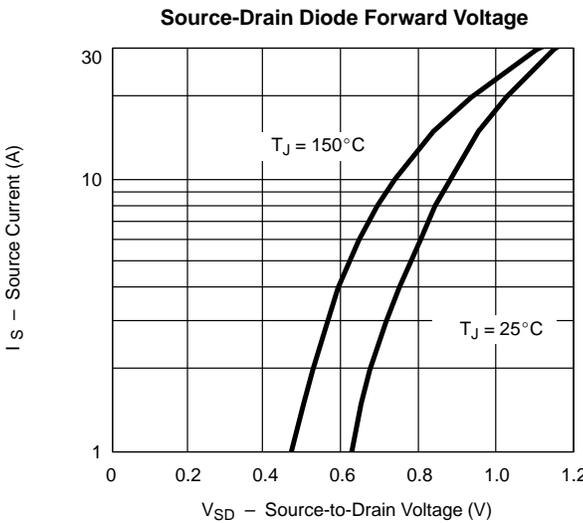
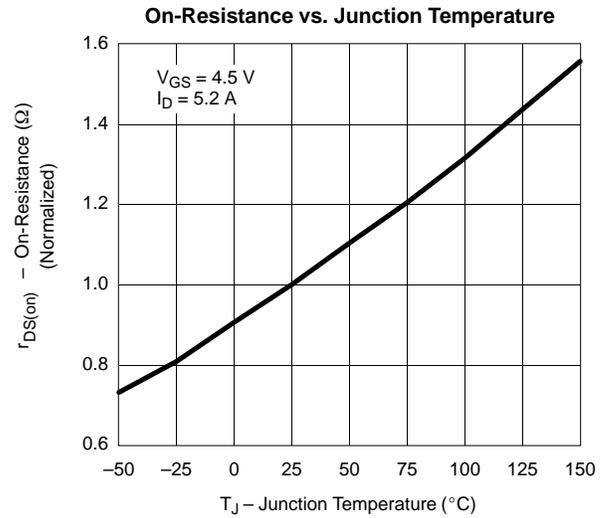
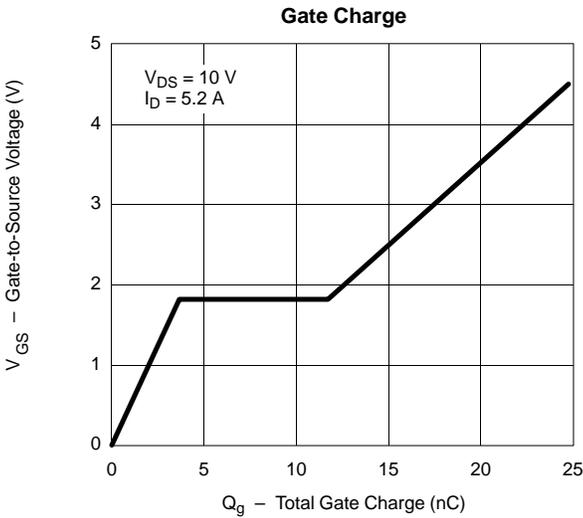
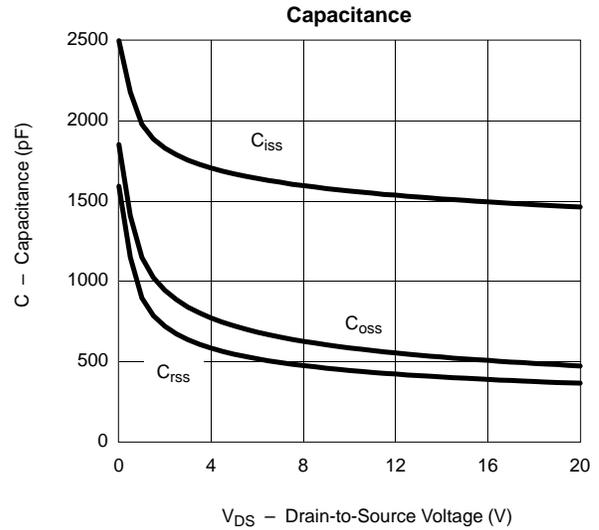
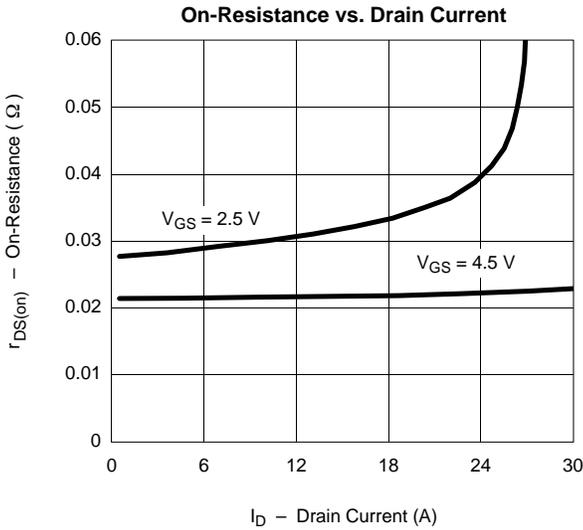
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



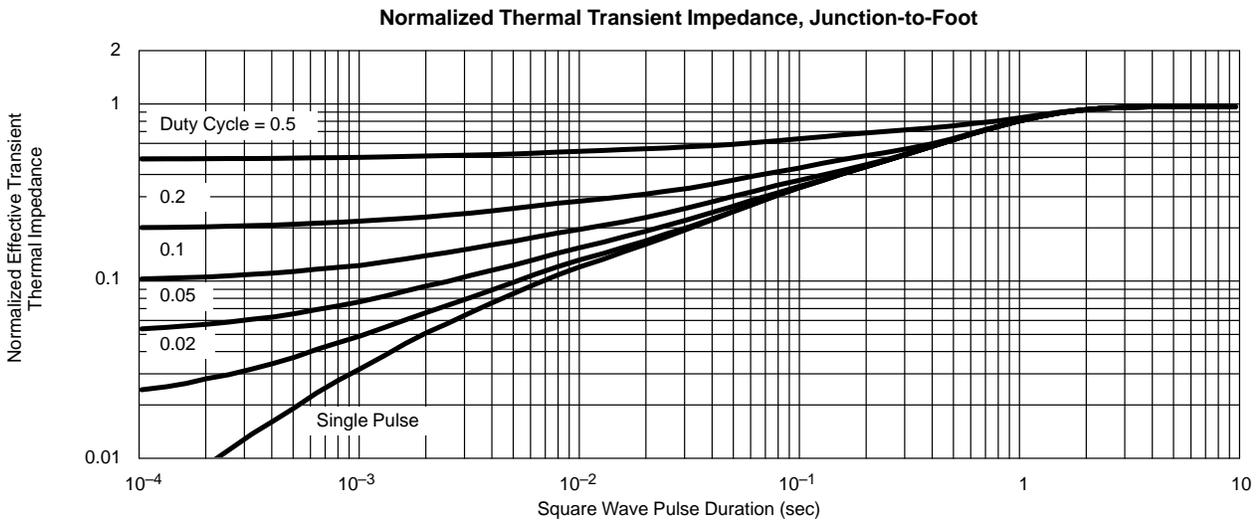
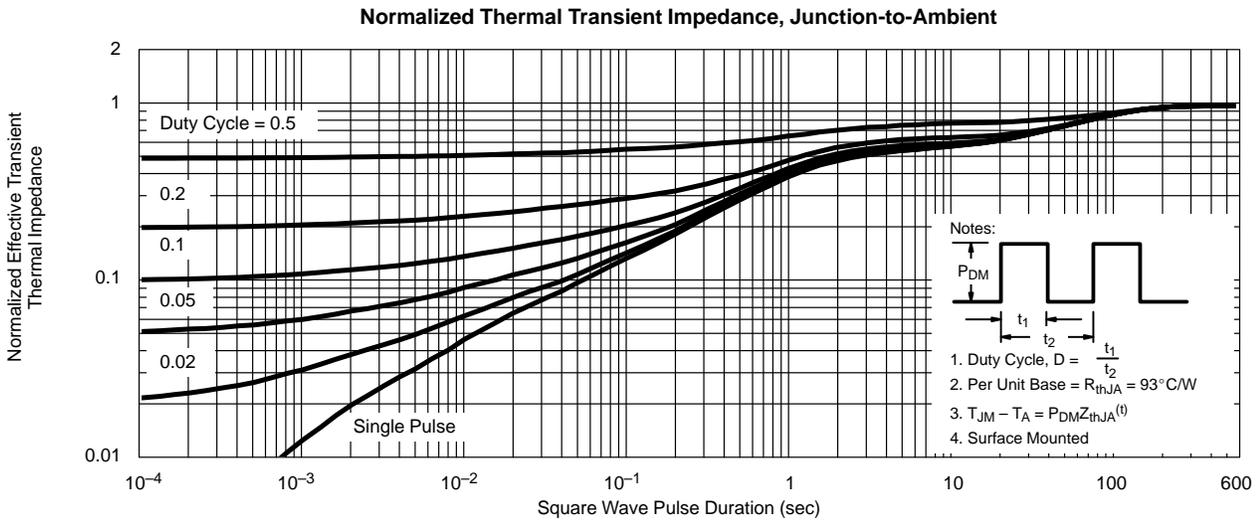
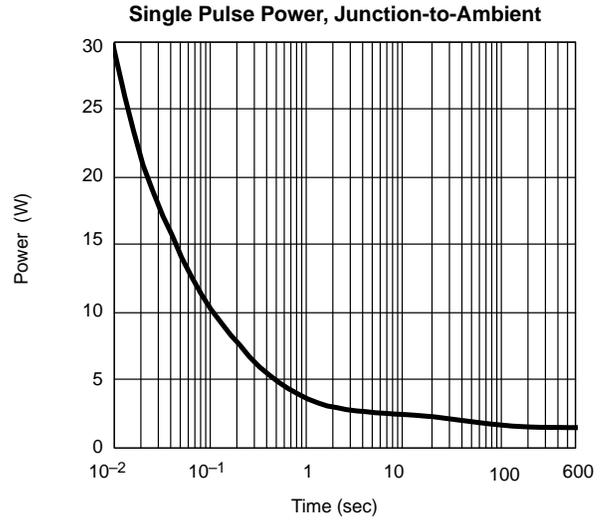
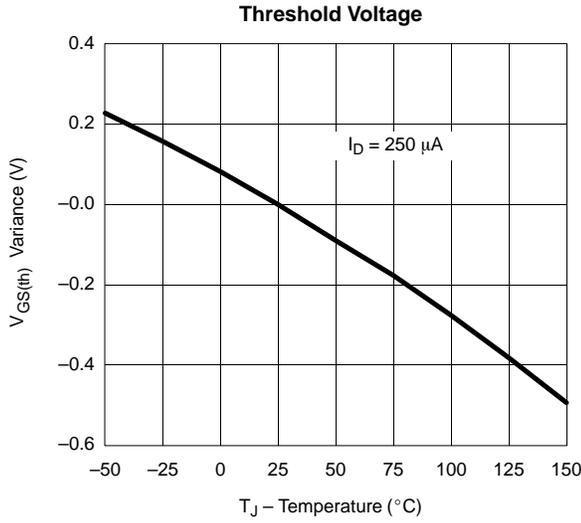


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





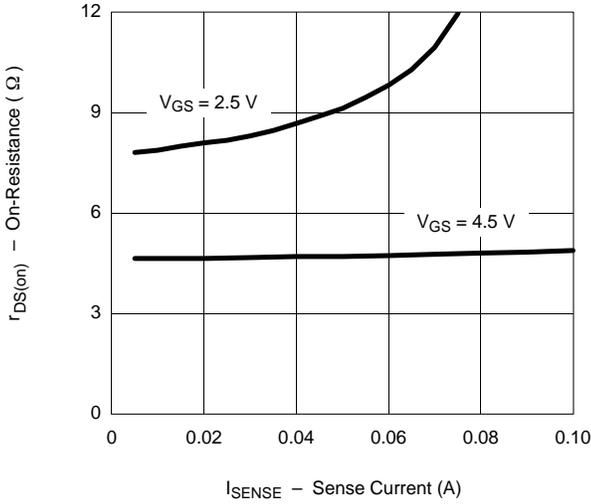
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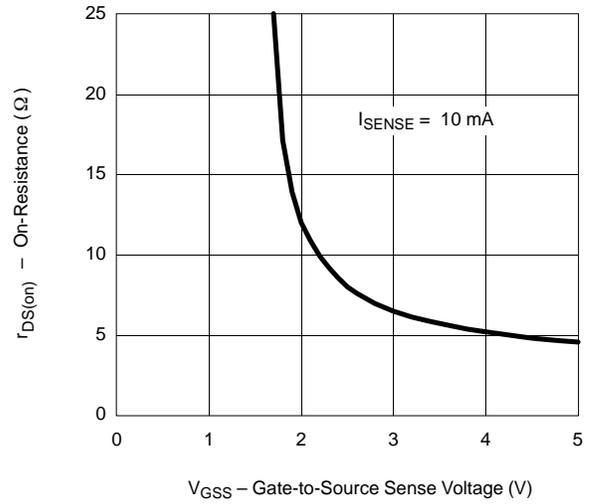


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) SENSE DIE

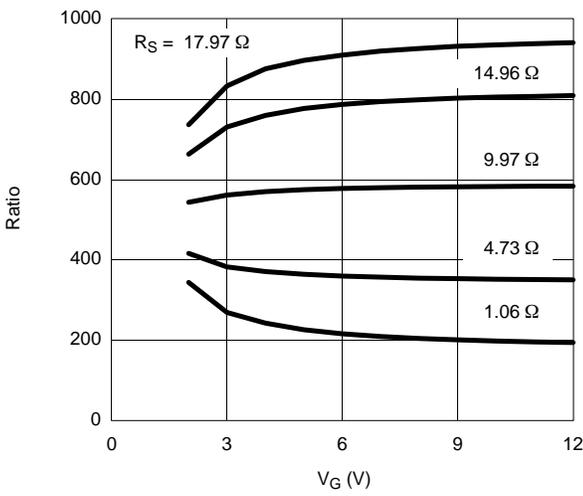
On-Resistance vs. Sense Current



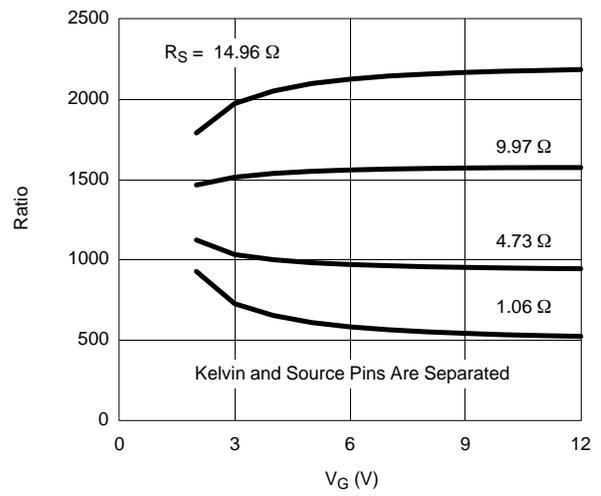
On-Resistance vs. Gate-to-Source Sense Voltage



Current Ratio (I_{MAIN}/I_S) vs. Gate Voltage (Channel-1)



Current Ratio (I_{MAIN}/I_S) vs. Gate Voltage (Channel-2)





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