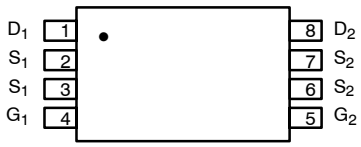
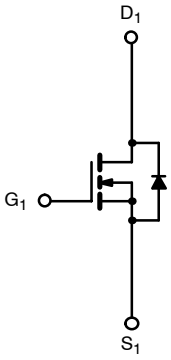
Dual N-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.030 @ V_{GS} = 4.5 V	4.5
	0.033 @ V_{GS} = 3.0 V	4.2
	0.035 @ V_{GS} = 2.5 V	3.9
	0.043 @ V_{GS} = 1.8 V	3.6

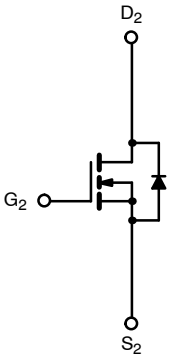
TSSOP-8



Top View



N-Channel MOSFET



N-Channel MOSFET

Ordering Information: Si6926ADQ-T1—E3 (Lead Free)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	20		V
Gate-Source Voltage		V_{GS}	±8		
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	4.5	4.1	A
	T_A = 70°C		3.6	3.3	
Pulsed Drain Current (10 μs Pulse Width)		I_{DM}	20		
Continuous Source Current (Diode Conduction)[a]		I_S	0.83	0.69	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	1.0	0.83	W
	T_A = 70°C		0.64	0.53	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient[a]	t ≤ 10 sec	R_{thJA}	90	125	°C/W
	Steady State		126	150	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	65	80	

Notes
a. Surface Mounted on FR4 Board, t ≤ 10 sec.

For SPICE model information via the Worldwide Web: http://www.vishay.com/www/product/spice.htm

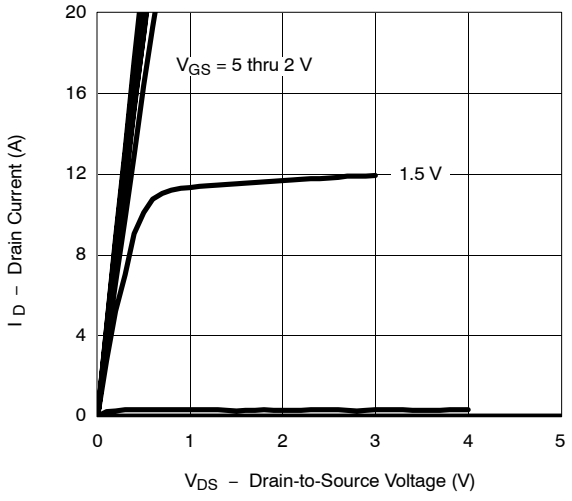
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ[a]	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	0.40		1.0	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20 V, V_{GS} = 0 V			1	μA
		V_{DS} = 20 V, V_{GS} = 0 V, T_J = 55°C			5	
On-State Drain Current[b]	$I_{D(on)}$	V_{DS} ≥ 5 V, V_{GS} = 5 V	10			A
Drain-Source On-State Resistance[b]	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 4.5 A		0.024	0.030	Ω
		V_{GS} = 3.0 V, I_D = 4.2 A		0.026	0.033	
		V_{GS} = 2.5 V, I_D = 3.9 A		0.029	0.035	
		V_{GS} = 1.8 V, I_D = 3.6 A		0.035	0.043	
Forward Transconductance[b]	g_{fs}	V_{DS} = 10 V, I_D = 4.5 A		26		S
Diode Forward Voltage[b]	V_{SD}	I_S = 0.83 A, V_{GS} = 0 V		0.6	1.1	V
Dynamic[a]						
Total Gate Charge	Q_g	V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 4.5 A		7.5	10.5	nC
Gate-Source Charge	Q_{gs}			1.2		
Gate-Drain Charge	Q_{gd}			1.2		
Gate Resistance	R_g			1.9		Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10 V, R_L = 10 Ω I_D ≅ 1 A, V_{GEN} = 10 V, R_g = 6 Ω		6	12	ns
Rise Time	t_r			16	25	
Turn-Off Delay Time	$t_{d(off)}$			46	70	
Fall Time	t_f			9	15	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = 0.83 A, di/dt = 100 A/μs		20	40	

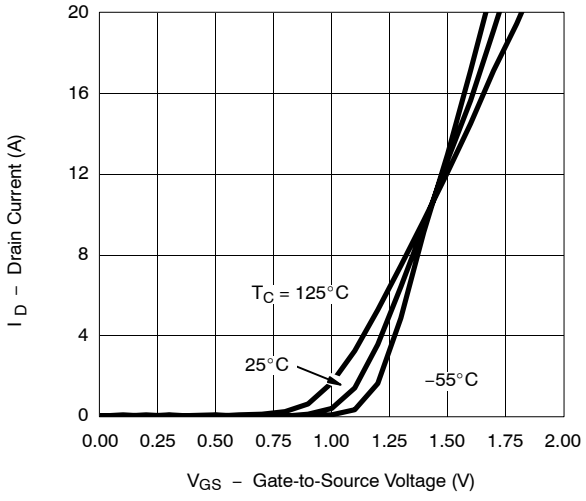
Notes
a. Guaranteed by design, not subject to production testing.
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Output Characteristics

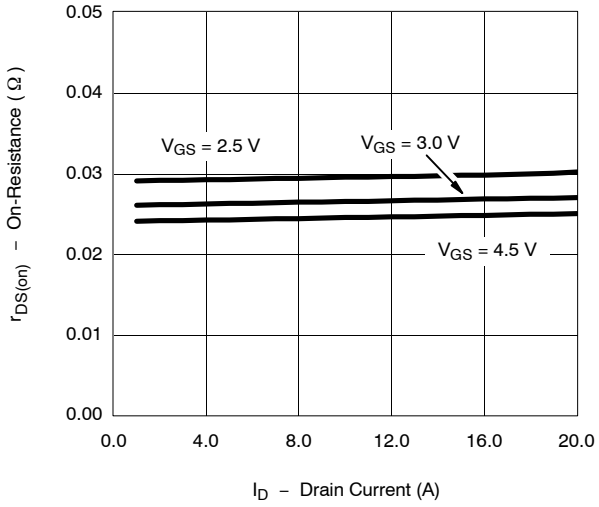


Transfer Characteristics

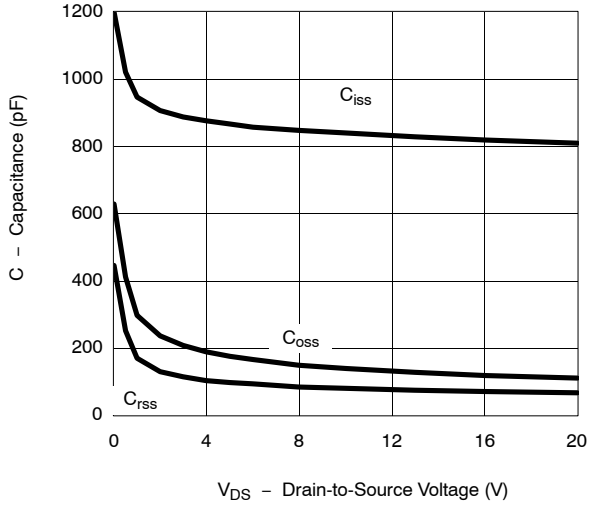


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

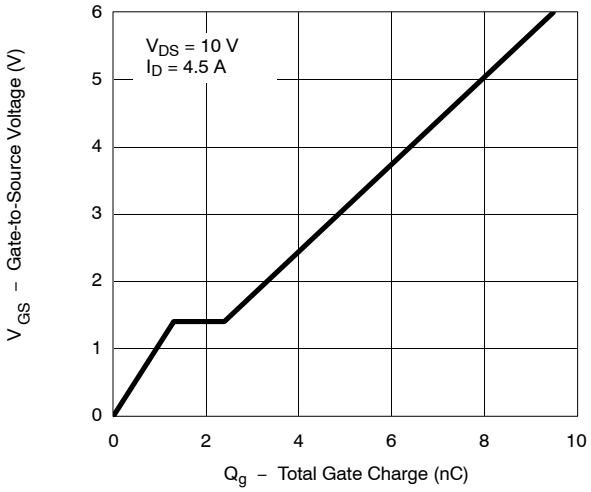
On-Resistance vs. Drain Current



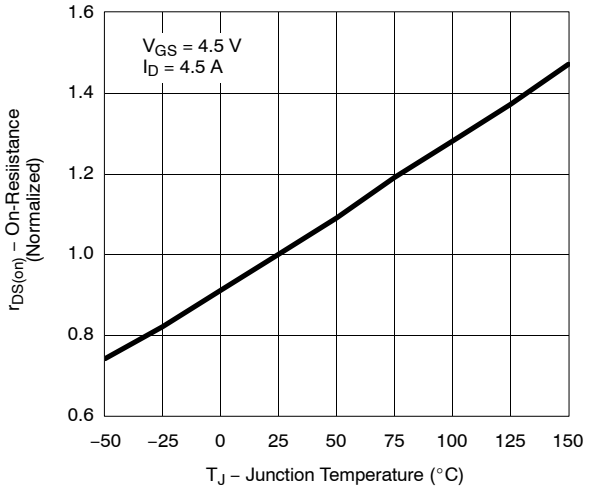
Capacitance



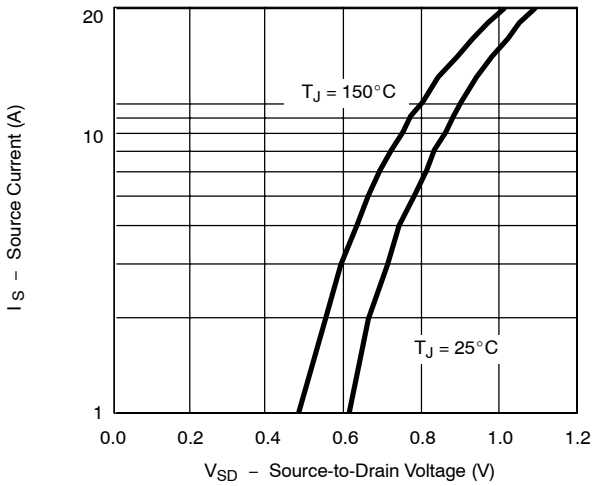
Gate Charge



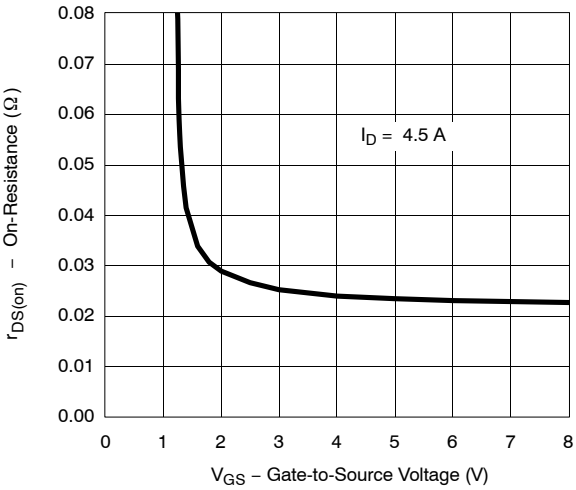
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

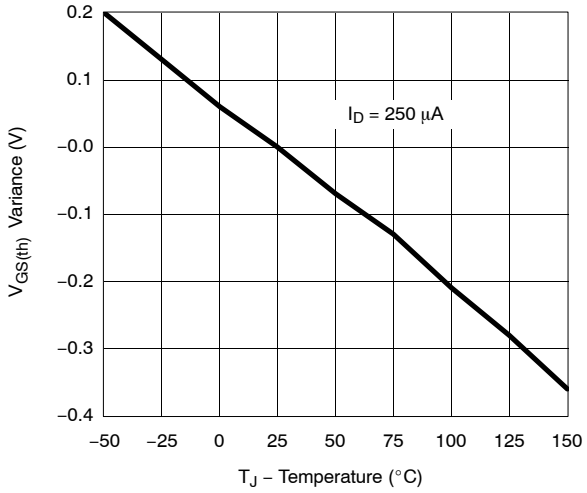


On-Resistance vs. Gate-to-Source Voltage

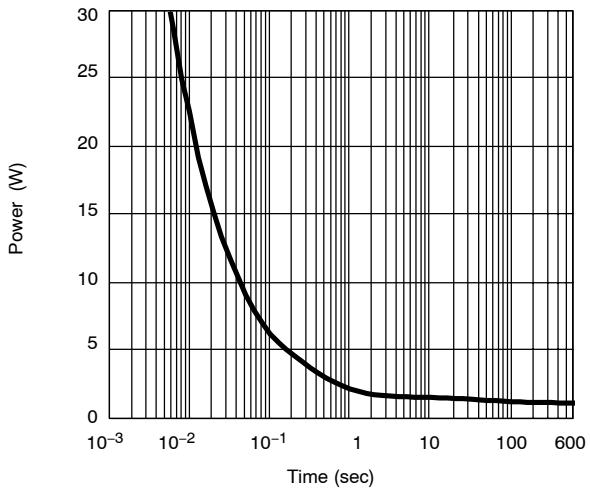


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

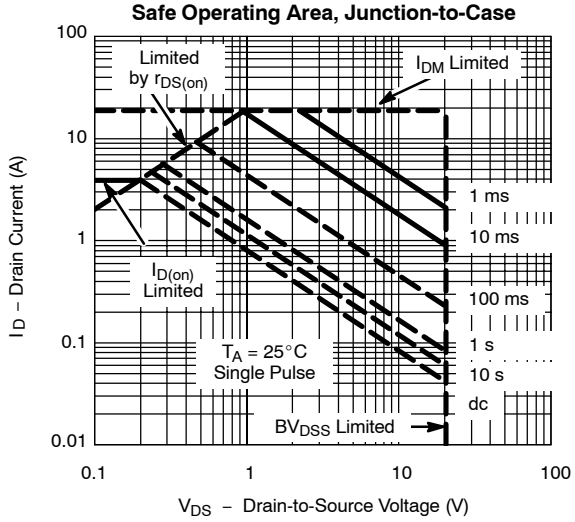
Threshold Voltage



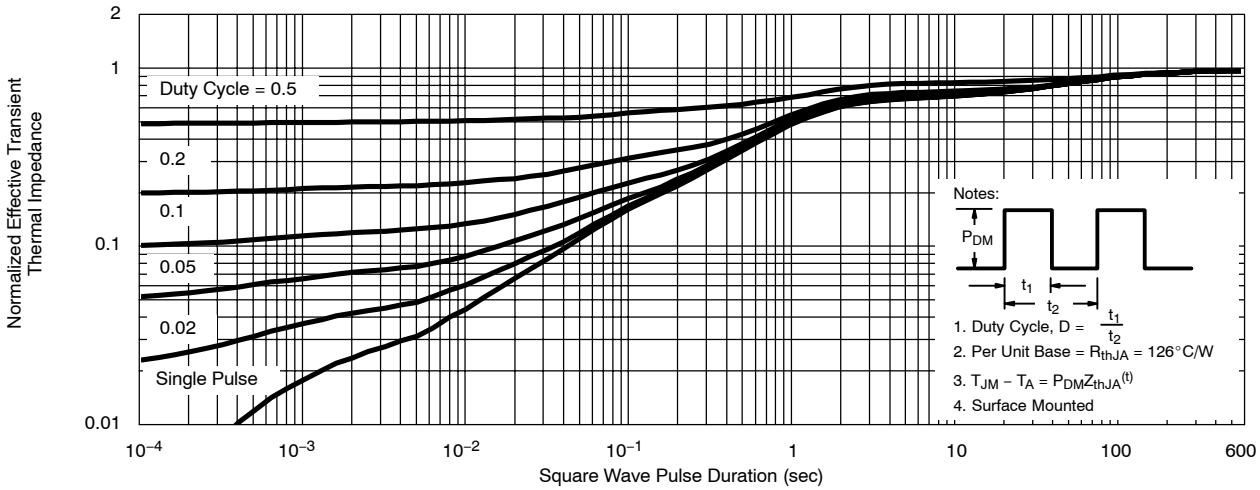
Single Pulse Power, Junction-to-Ambient



Safe Operating Area, Junction-to-Case



Normalized Thermal Transient Impedance, Junction-to-Ambient



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)