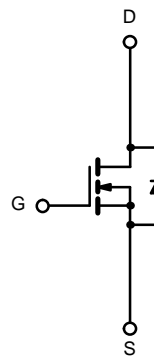
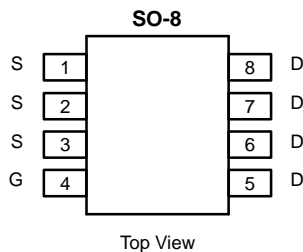




N-Channel 20-V (D-S) MOSFET

TrenchFET®
Power MOSFETs
2.5-V Rated

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
20	0.025 @ V _{GS} = 4.5 V	± 8.5
	0.035 @ V _{GS} = 2.5 V	± 7.1



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}	± 12		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	± 8.5	± 6.5	A
	T _A = 70°C		± 6.8	± 5.2	
Pulsed Drain Current (10 μs Pulse Width)		I _{DM}	± 40		
Continuous Source Current (Diode Conduction) ^a		I _S	2.1	2.1	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.5	1.5	W
	T _A = 70°C		1.6	0.9	
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}	38	50	°C/W
	Steady State		70	85	
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	20	25	

Notes

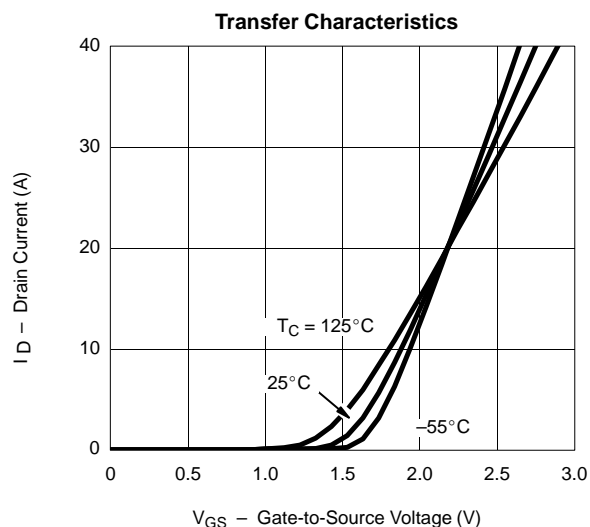
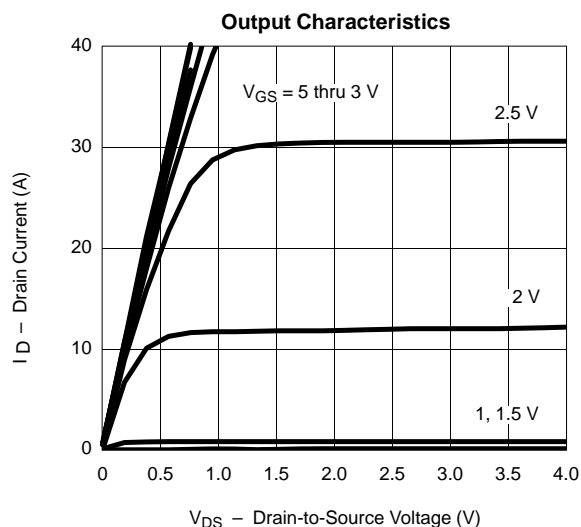
a. Surface Mounted on 1" x 1" FR4 Board.


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} = 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 ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	40			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 8.5 A		0.019	0.025	Ω
		V _{GS} = 2.5 V, I _D = 7.1 A		0.025	0.035	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 8.5 A		27		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.1 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 = 8.5 A		25	50	nC
Gate-Source Charge	Q _{gs}			6.5		
Gate-Drain Charge	Q _{gd}			4		
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		40	60	ns
Rise Time	t _r			40	60	
Turn-Off Delay Time	t _{d(off)}			90	150	
Fall Time	t _f			40	60	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 2.1 A, di/dt = 100 A/μs		40	60	

Notes

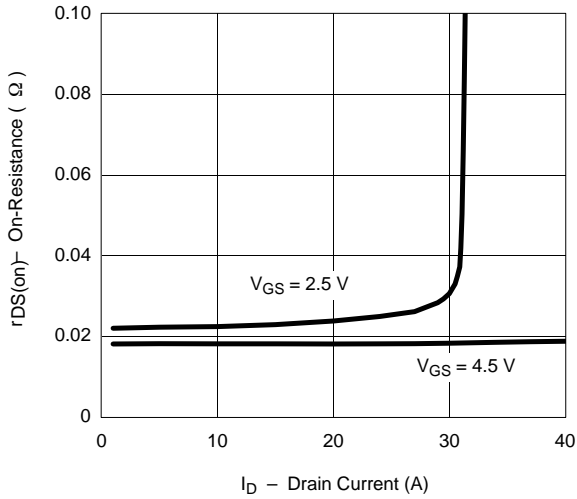
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)


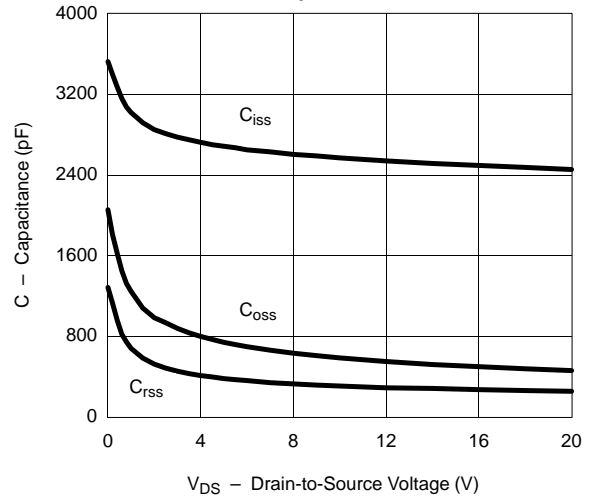


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

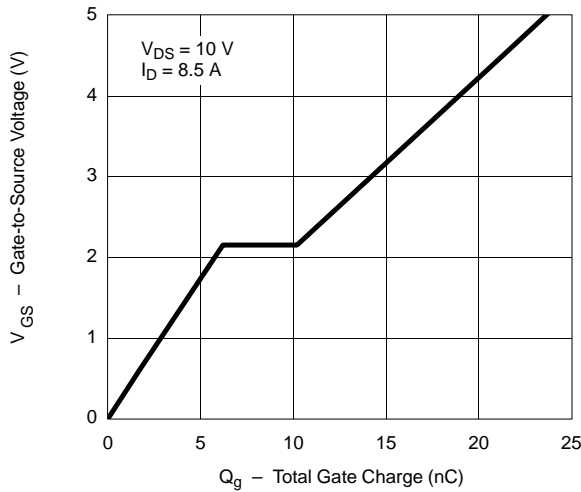
On-Resistance vs. Drain Current



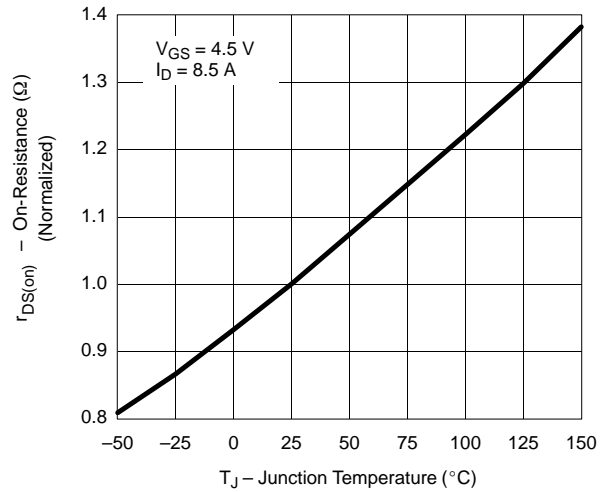
Capacitance



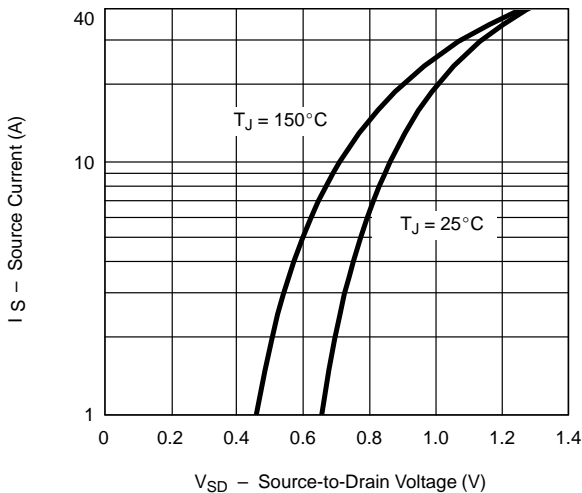
Gate Charge



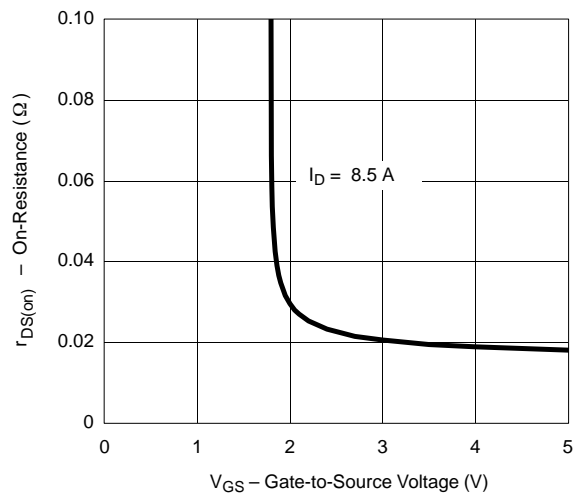
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

