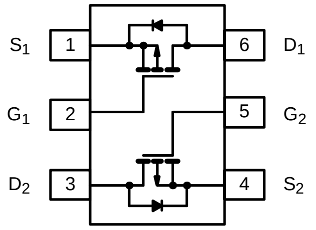
Dual P-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.995 @ V_{GS} = -4.5 V	±0.44
	1.190 @ V_{GS} = -3.6 V	±0.40
	1.80 @ V_{GS} = -2.5 V	±0.32

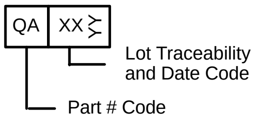
TrenchFET® Power MOSFETs
2.5-V Rated

SOT-363
SC-70 (6-LEADS)



Top View

Marking Code



ABSOLUTE MAXIMUM RATINGS (T_A = 25°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°C)[a]	T_A = 25°C	I_D	±0.44	±0.41	A
	T_A = 85°C		±0.31	±0.30	
Pulsed Drain Current		I_{DM}	±1.0		
Continuous Diode Current (Diode Conduction)[a]		I_S	-0.25	-0.23	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	0.30	0.27	W
	T_A = 85°C		0.16	0.14	
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 ≤ 5 sec	R_{thJA}	360	415	°C/W
	Steady State		400	460	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	300	350	

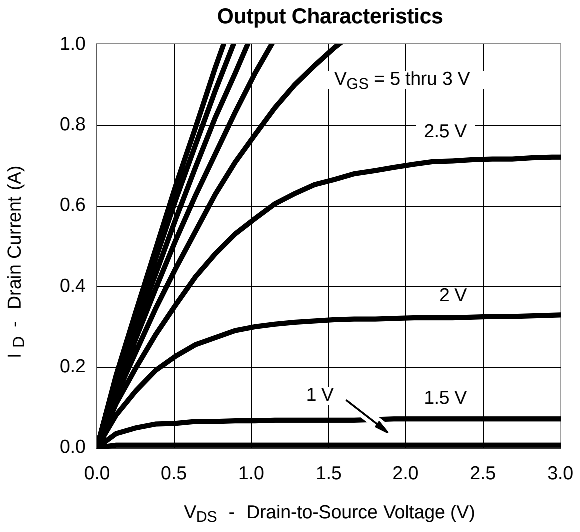
Notes
a. Surface Mounted on 1” x 1” FR4 Board.

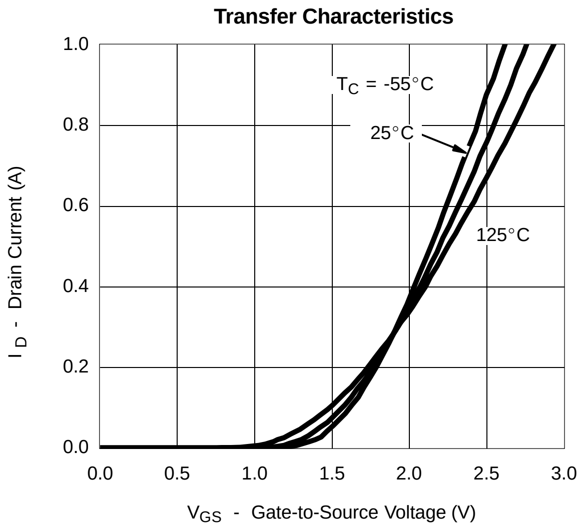
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

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 = 85°C			-5	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -4.5 V	-1.0			A
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = -4.5 V, I_D = -0.41 A		0.850	0.995	Ω
		V_{GS} = -3.6 V, I_D = -0.38 A		1.0	1.190	
		V_{GS} = -2.5 V, I_D = -0.25 A		1.4	1.80	
Forward Transconductance[a]	g_{fs}	V_{DS} = -10 V, I_D = -0.41 A		0.8		S
Diode Forward Voltage[a]	V_{SD}	I_S = -0.23 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 = -0.41 A		1.2	1.8	nC
Gate-Source Charge	Q_{gs}			0.45		
Gate-Drain Charge	Q_{gd}			0.25		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -10 V, R_L = 20 Ω I_D ≅ -0.5 A, V_{GEN} = -4.5 V, R_G = 6 Ω		7.5	15	ns
Rise Time	t_r			20	40	
Turn-Off Delay Time	$t_{d(off)}$			8.5	17	
Fall Time	t_f			12	24	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = -0.23 A, di/dt = 100 A/µs		25	40	

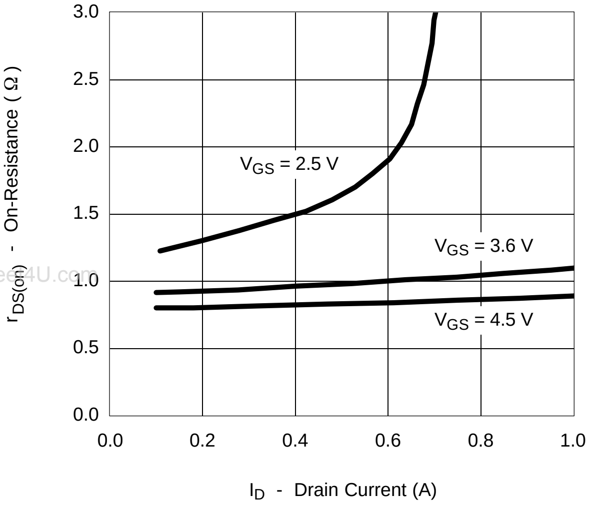
Notes
a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

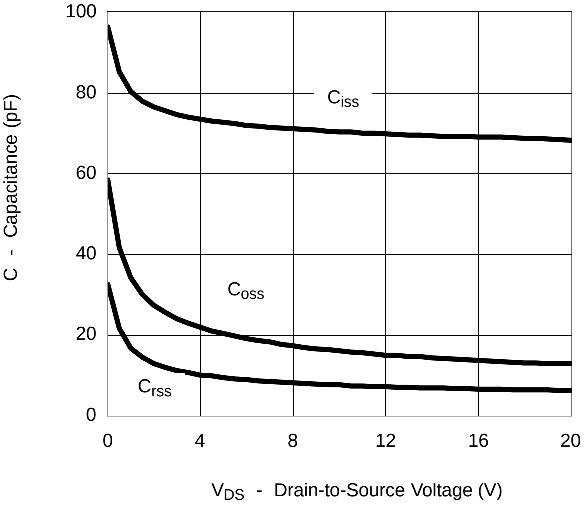
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

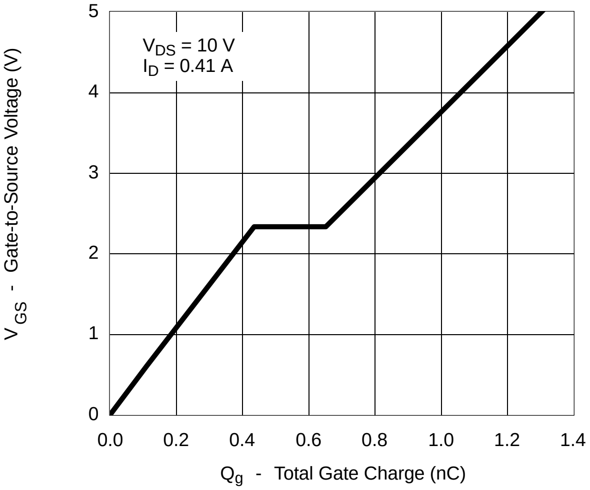

Output Characteristics

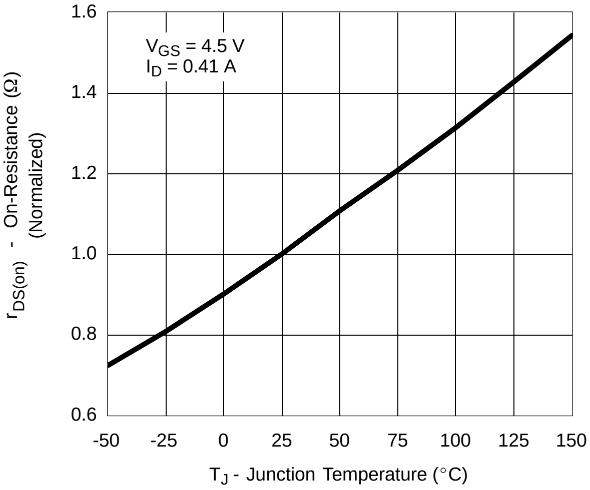

Transfer Characteristics

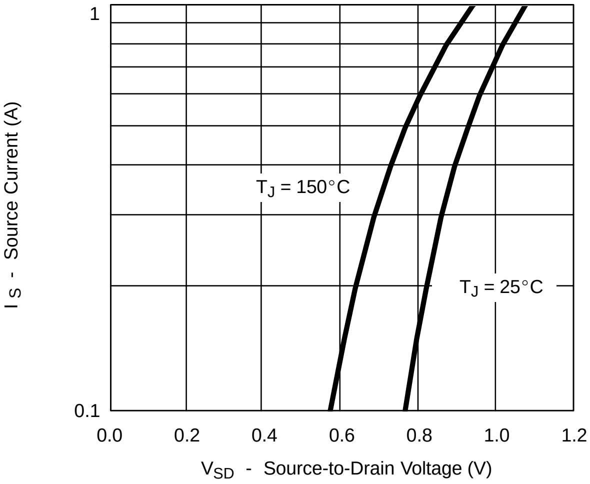
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

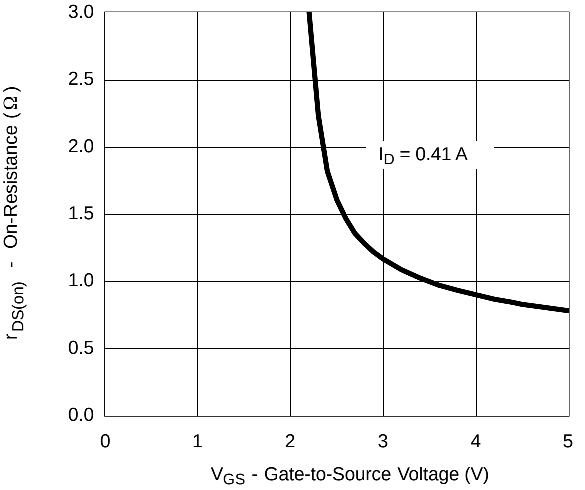

On-Resistance vs. Drain Current


Capacitance


Gate Charge

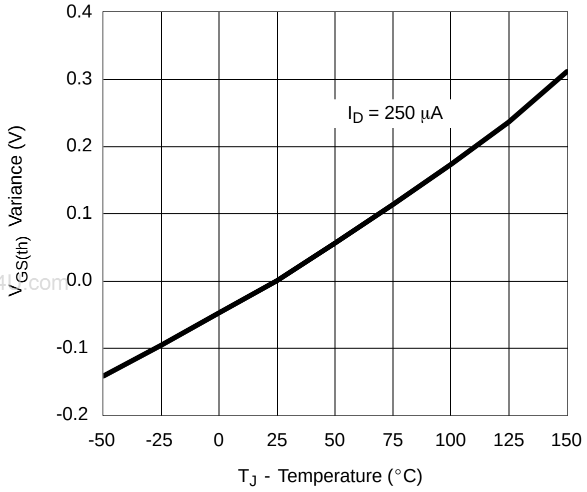

On-Resistance vs. Junction Temperature


Source-Drain Diode Forward Voltage

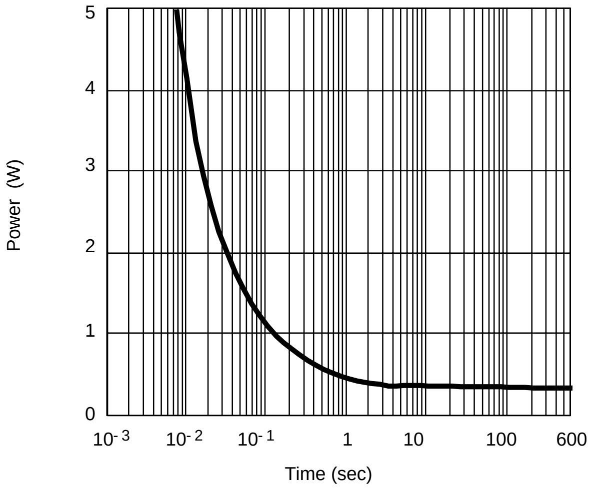

On-Resistance vs. Gate-to-Source Voltage

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

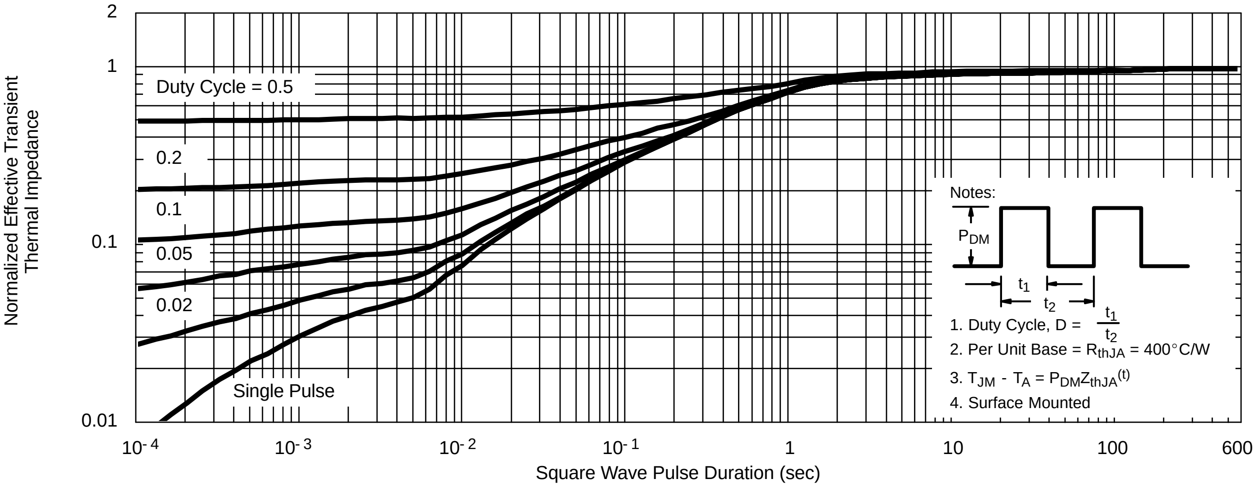
Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot