

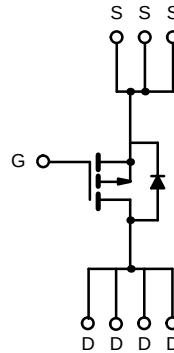
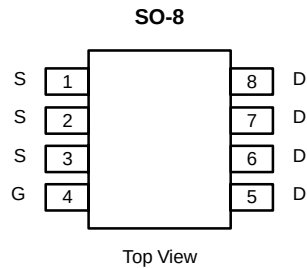


P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.030 @ $V_{GS} = -10$ V	± 7.0
	0.055 @ $V_{GS} = -4.5$ V	± 5.0

TrenchFET®
Power MOSFETs



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	−30		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	± 7.0	± 5.3	A
	T _A = 70°C		± 5.5	± 4.2	
Pulsed Drain Current		I _{DM}	± 30		
continuous Source Current (Diode Conduction) ^a		I _S	−2.1	−1.3	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.5	1.35	W
	T _A = 70°C		1.6	0.87	
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	$t \leq 10$ sec	R_{thJA}	38	50	$^\circ\text{C/W}$
	Steady State		71	92	
Maximum Junction-to-Foot	Steady State	R_{thJF}	19	25	

Notes

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

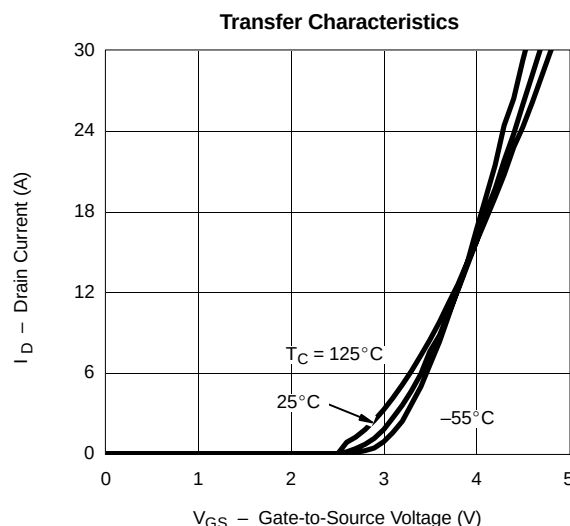
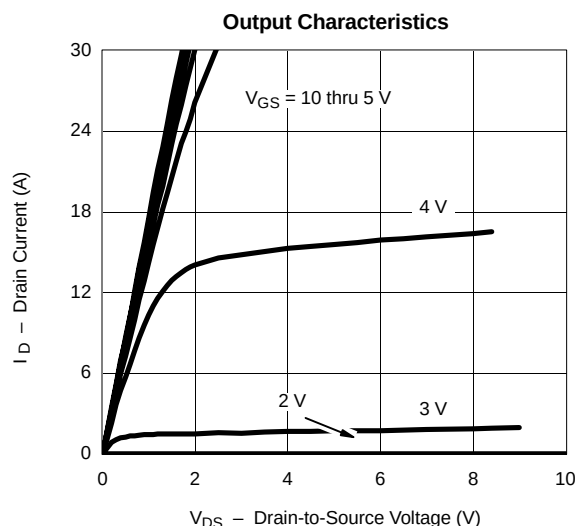
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 20\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -24\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 70^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}$, $V_{GS} = -10\ \text{V}$	-30			A
		$V_{DS} = -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-7			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}$, $I_D = -7.0\ \text{A}$		0.024	0.030	Ω
		$V_{GS} = -4.5\ \text{V}$, $I_D = -5.0\ \text{A}$		0.042	0.055	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -15\ \text{V}$, $I_D = -7.0\ \text{A}$		14		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -2.1\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.78	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -15\ \text{V}$, $V_{GS} = -5\ \text{V}$, $I_D = -7.0\ \text{A}$		15	20	nC
Gate-Source Charge	Q_{gs}			5.7		
Gate-Drain Charge	Q_{gd}			5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\ \text{V}$, $R_L = 15\ \Omega$ $I_D \cong -1\ \text{A}$, $V_{GEN} = -10\ \text{V}$, $R_G = 6\ \Omega$		12	20	ns
Rise Time	t_r			10	20	
Turn-Off Delay Time	$t_{d(off)}$			42	60	
Fall Time	t_f			17	25	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.1\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		40	80	

Notes

a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

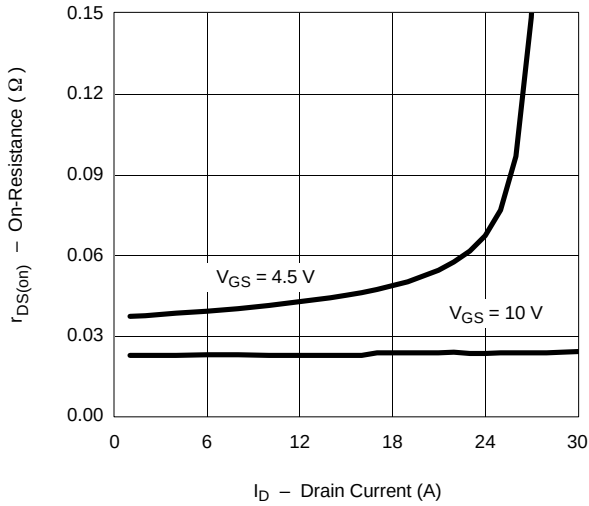
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

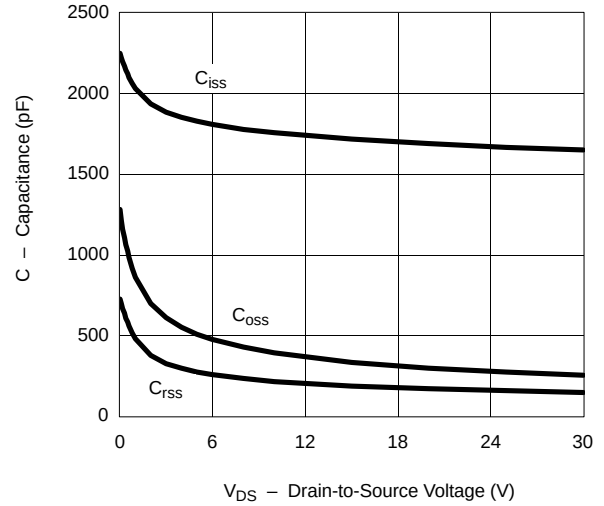


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

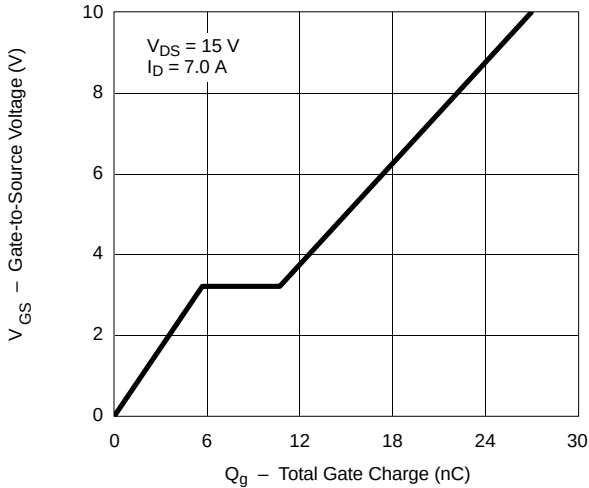
On-Resistance vs. Drain Current



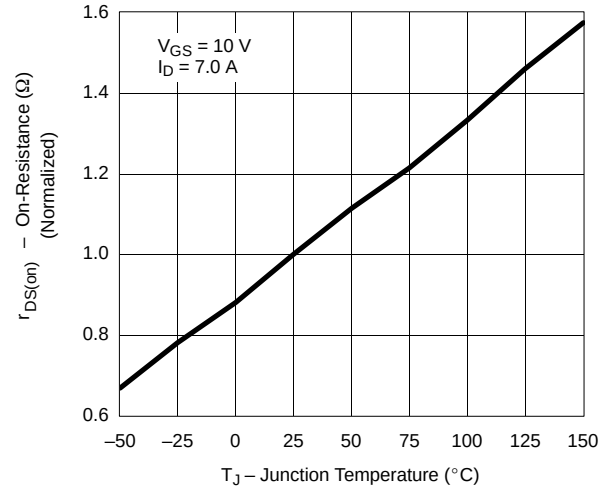
Capacitance



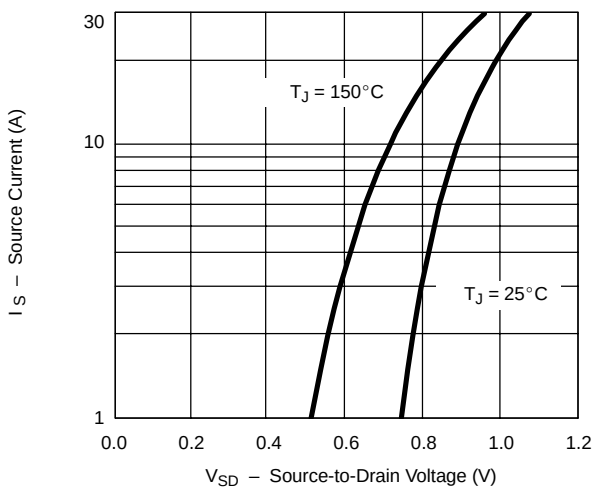
Gate Charge



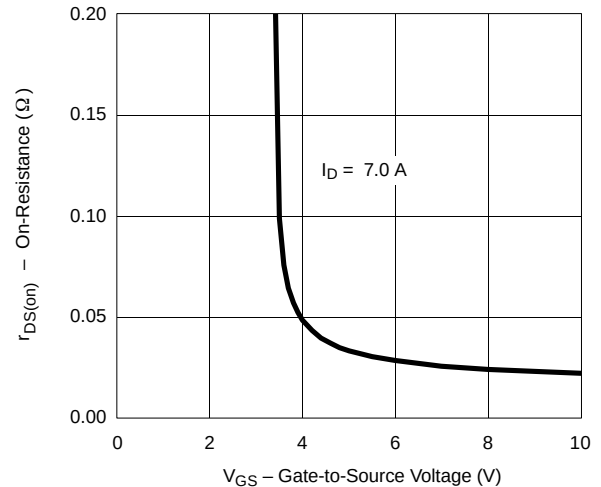
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

