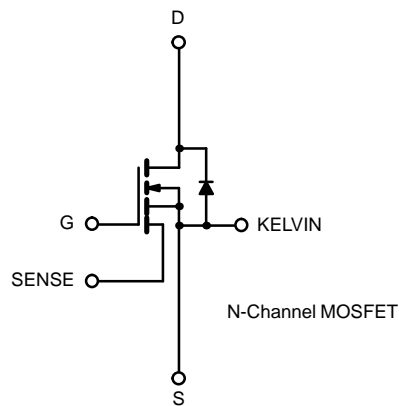
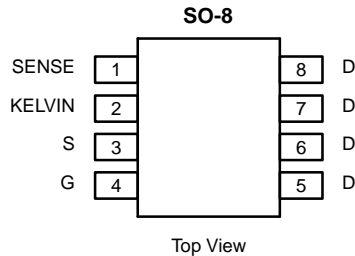




Current Sensing MOSFET, N-Channel 30-V (D-S)

175°C Rated
Maximum Junction Temperature
TrenchFET®
Power MOSFETs

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.015 @ $V_{GS} = 10$ V	11.7
	0.020 @ $V_{GS} = 4.5$ V	10.1



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 ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	11.7	8.0	A
		$T_A = 70^\circ\text{C}$	9.8	6.7	
Pulsed Drain Current (10 μs Pulse Width)	I_{DM}	40			
Continuous Source Current (Diode Conduction) ^a	I_S	3.3	1.6	W	
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	3.6		1.7
		$T_A = 70^\circ\text{C}$	2.5	1.2	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	R_{thJA}	$t \leq 10$ sec	35	42	$^\circ\text{C/W}$
		Steady State	77	90	
Maximum Junction-to-Foot (Drain)	R_{thJF}	18	22		

Notes

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



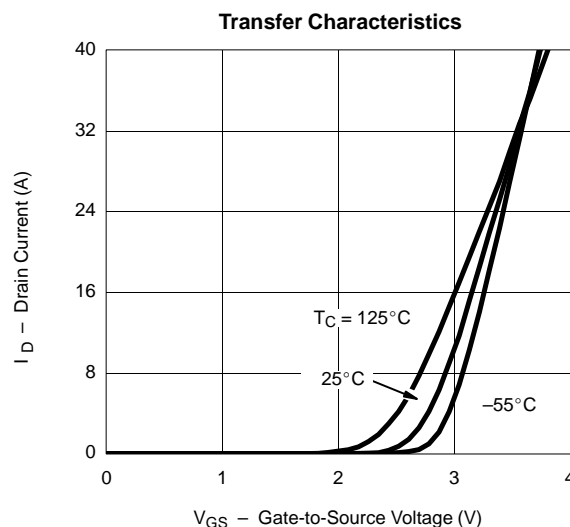
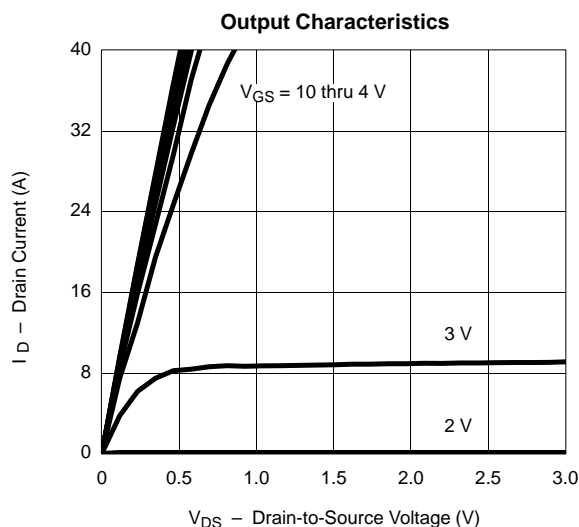
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1.0			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55 °C			25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	40			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 11.7 A		0.0125	0.015	Ω
		V _{GS} = 4.5 V, I _D = 10.1 A		0.015	0.020	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 11.7 A		35		S
Diode Forward Voltage ^a	V _{SD}	I _S = 3.3 A, V _{GS} = 0 V		0.75	1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 11.7 A		34	50	nC
Gate-Source Charge	Q _{gs}			7		
Gate-Drain Charge	Q _{gd}			5.6		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω		13	26	ns
Rise Time	t _r			10	20	
Turn-Off Delay Time	t _{d(off)}			60	120	
Fall Time	t _f			20	40	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 3.3 A, di/dt = 100 A/μs		30	60	
Current Sense Characteristics						
Current Sensing Ratio	r	I _D = 1 A, V _{GSS} = 10 V, R _{SENSE} = 2.2 Ω	360	450	540	
Mirror Active Resistance	r _{m(on)}	V _{GS} = 10 V, I _D = 10 mA		3.5		Ω

Notes

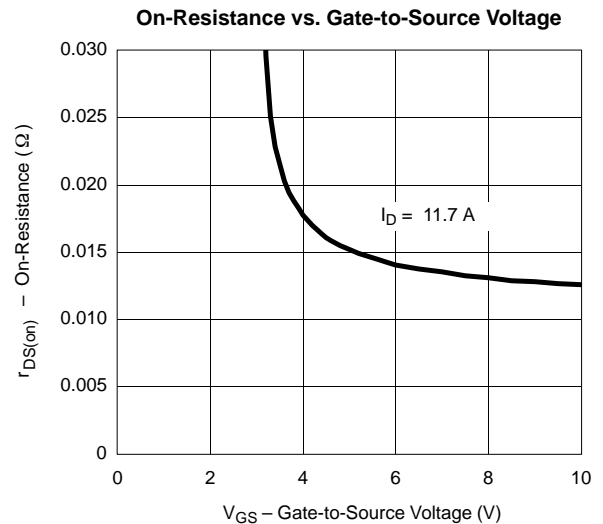
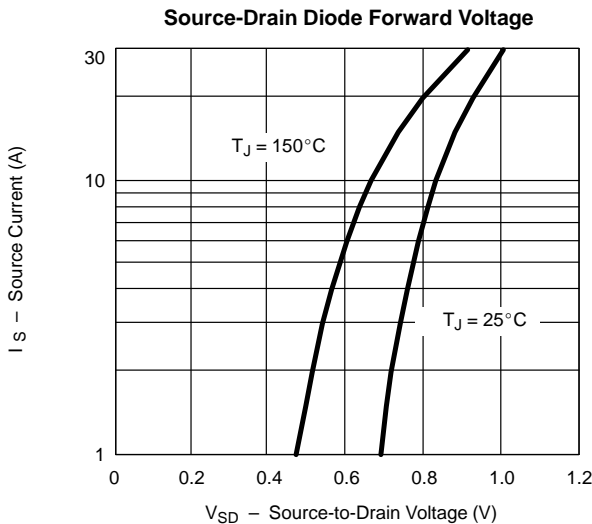
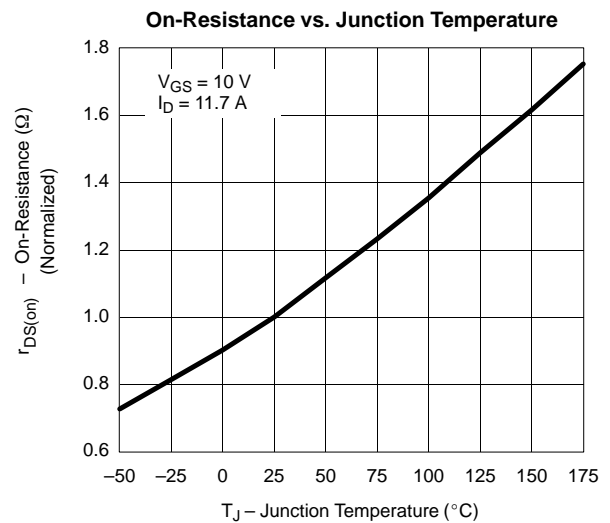
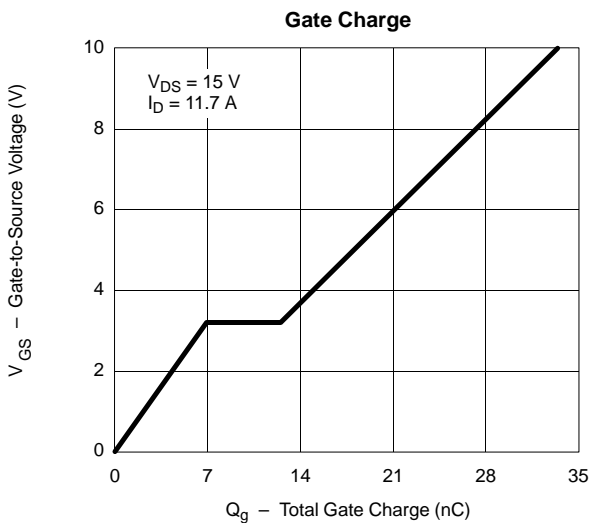
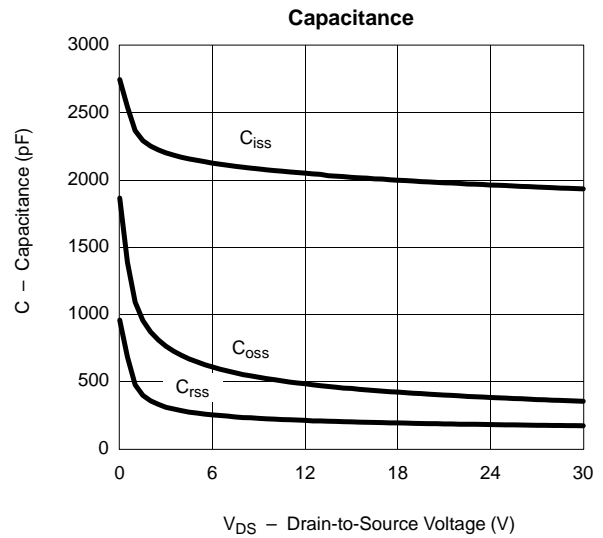
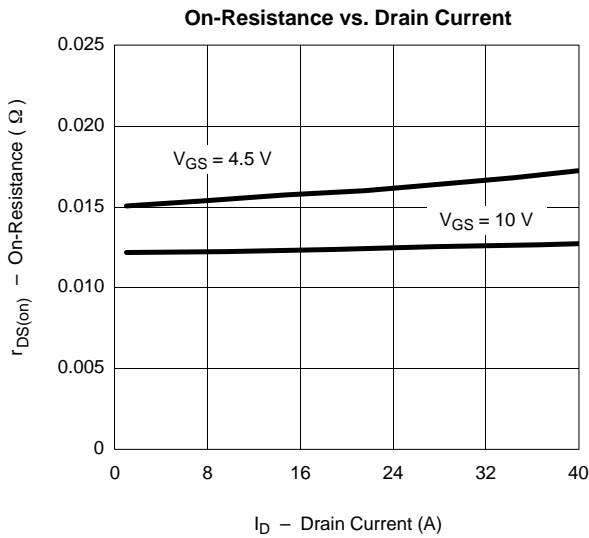
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



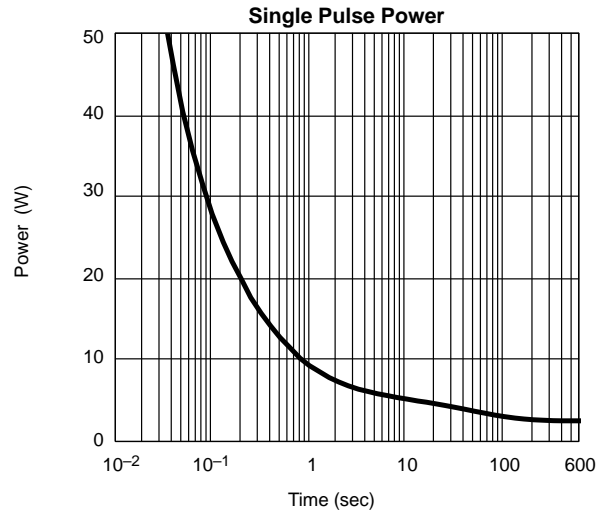
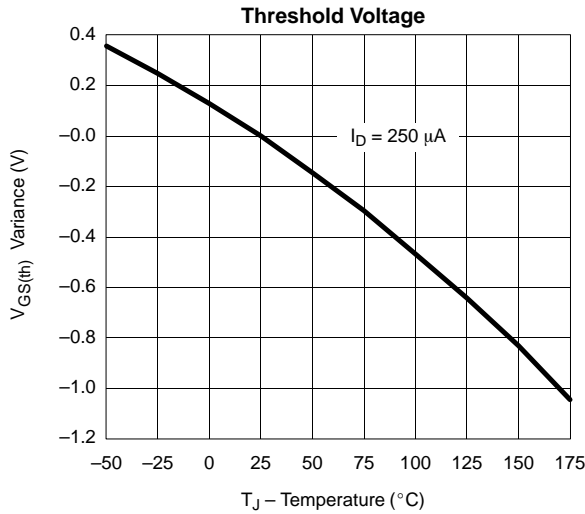


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

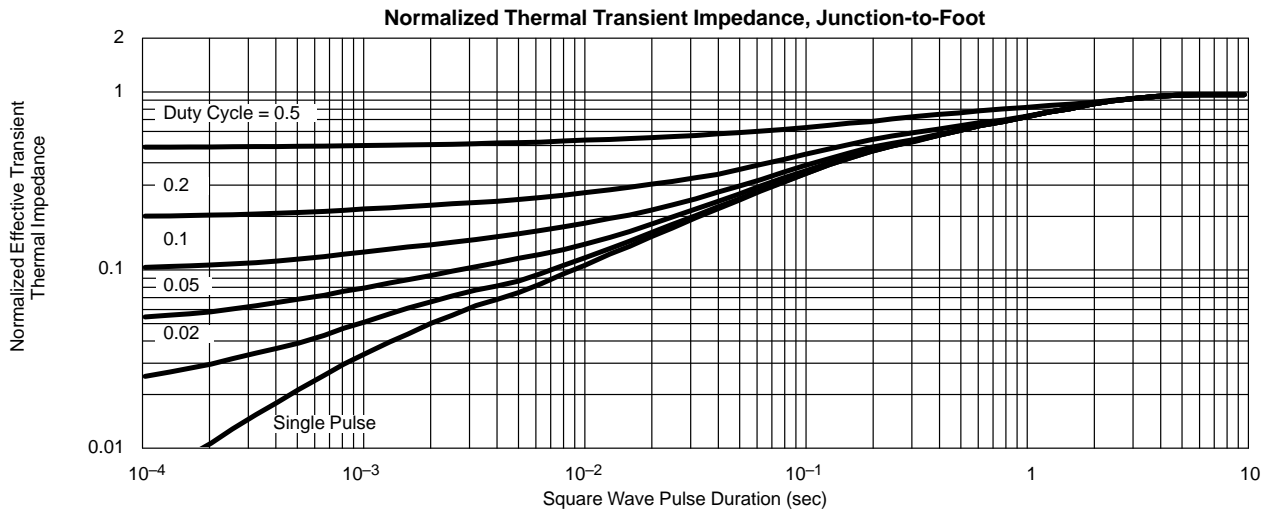
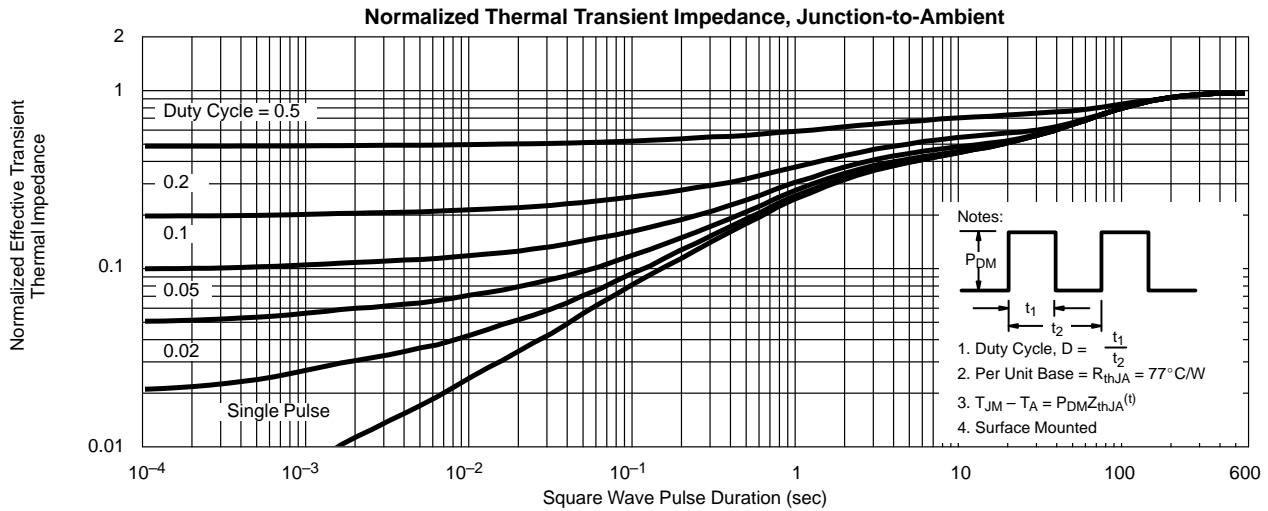




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) SENSE DIE

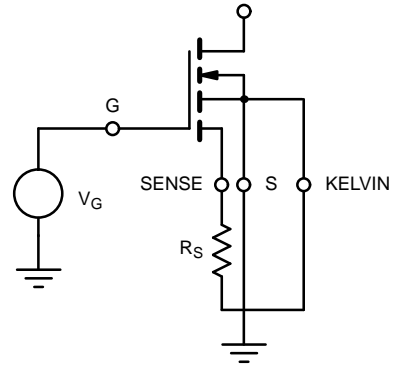
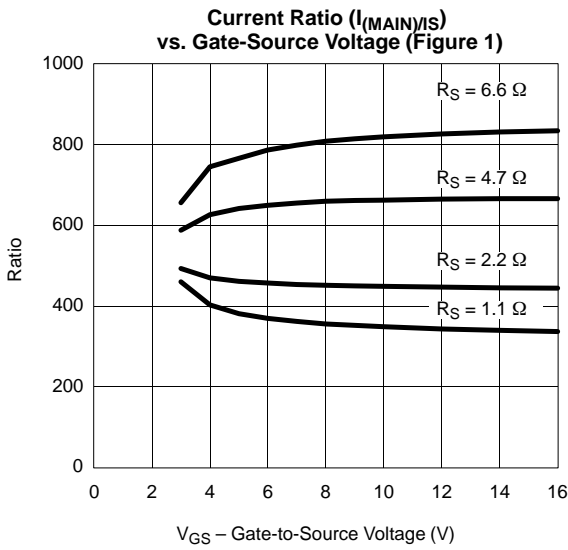
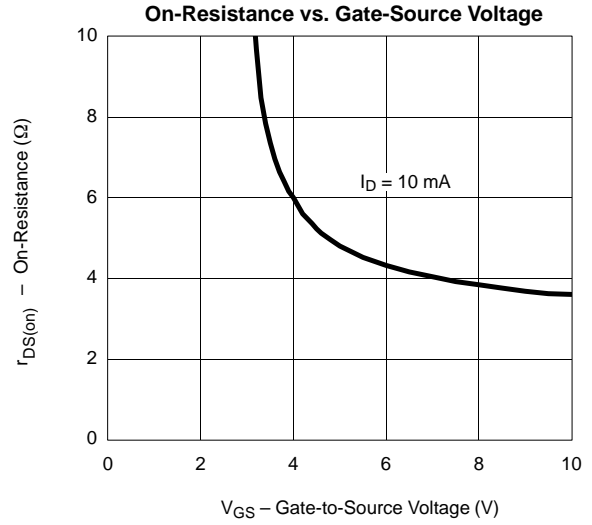
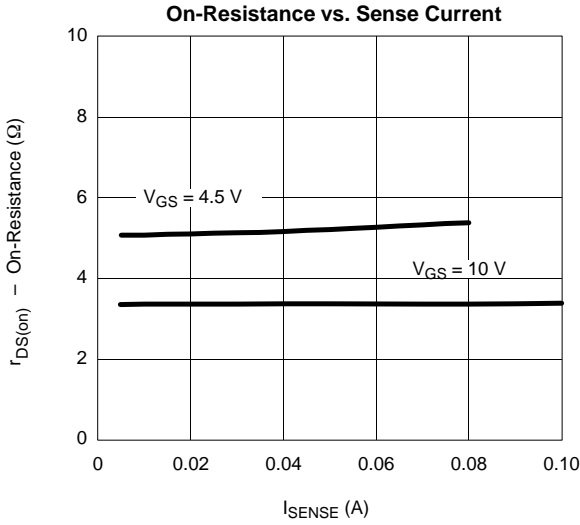


Figure 1