

SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ. ^a	Max.	Unit		
Static								
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 1 mA	Ch-1	30		V		
		V _{GS} = 0 V, I _D = 1 mA	Ch-2	30				
V _{DS} Temperature Coefficient	ΔV _{DS} /T _J	I _D = 250 μA	Ch-1		32	mV/°C		
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J	I _D = 250 μA	Ch-1		- 6			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	Ch-1	1		3	V	
		V _{DS} = V _{GS} , I _D = 1 mA	Ch-2	1		3		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V	Ch-1			100	nA	
		V _{DS} = 0 V, V _{GS} = ± 20 V	Ch-2			100		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V	Ch-1			0.001	mA	
		V _{DS} = 30 V, V _{GS} = 0 V	Ch-2		0.016	0.10		
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 100 °C	Ch-1			0.025		
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 100 °C	Ch-2		1.1	10		
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	Ch-1	20			A	
		V _{DS} = 5 V, V _{GS} = 10 V	Ch-2	20				
Drain-Source On-State Resistance ^b	R _{DS(on)}	V _{GS} = 10 V, I _D = 8 A	Ch-1		0.0156	0.020	Ω	
		V _{GS} = 10 V, I _D = 8 A	Ch-2		0.0156	0.020		
		V _{GS} = 4.5 V, I _D = 5 A	Ch-1		0.019	0.025		
		V _{GS} = 4.5 V, I _D = 5 A	Ch-2		0.019	0.025		
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 8 A	Ch-1		29		S	
		V _{DS} = 15 V, I _D = 8 A	Ch-2		29			
Dynamic ^a								
Input Capacitance	C _{iss}	Channel-1 V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz	Ch-1		950		pF	
Output Capacitance	C _{oss}		Ch-2		950			
Reverse Transfer Capacitance	C _{rss}	Channel-2 V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz	Ch-1		155			
			Ch-2		185			
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 8 A	Ch-1		16.5	25	nC	
			Ch-2		16.5	25		
		Channel-1 V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 8 A	Ch-1		7.3	11		
			Ch-2		7.3	11		
Gate-Source Charge	Q _{gs}	Channel-2 V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 8 A	Ch-1		2.7			
Gate-Drain Charge	Q _{gd}		Ch-2		2.7			
			Ch-1		2.1			
			Ch-2		2.1			
Gate Resistance	R _g	f = 1 MHz	Ch-1	0.2	1.2	2.4	Ω	
			Ch-2	0.2	1.2	2.4		

Notes:

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

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



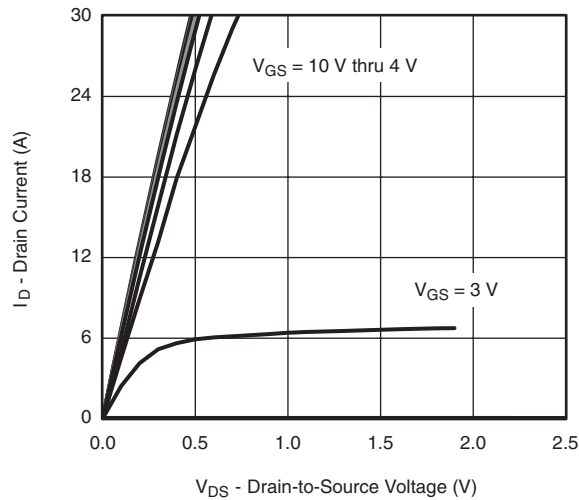
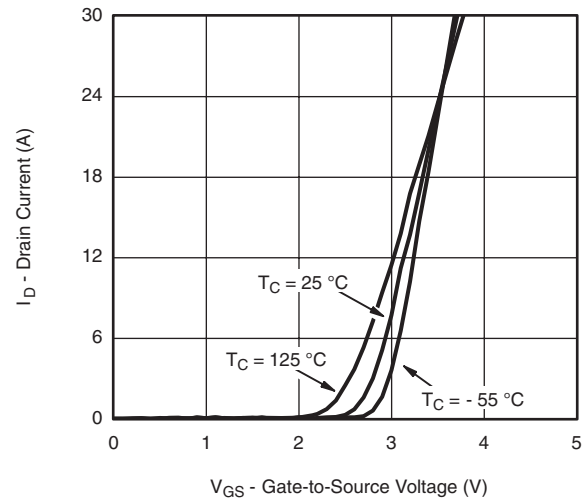
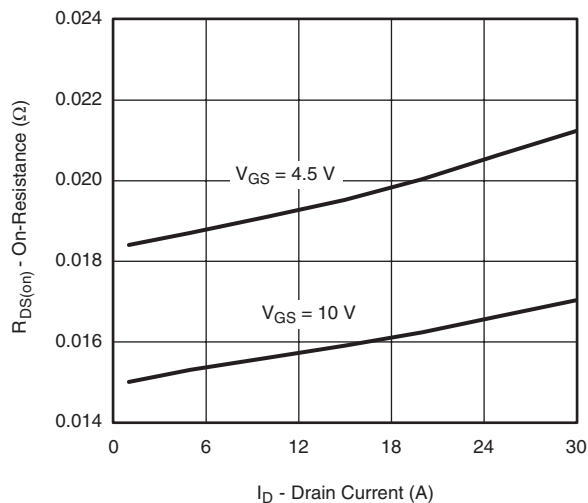
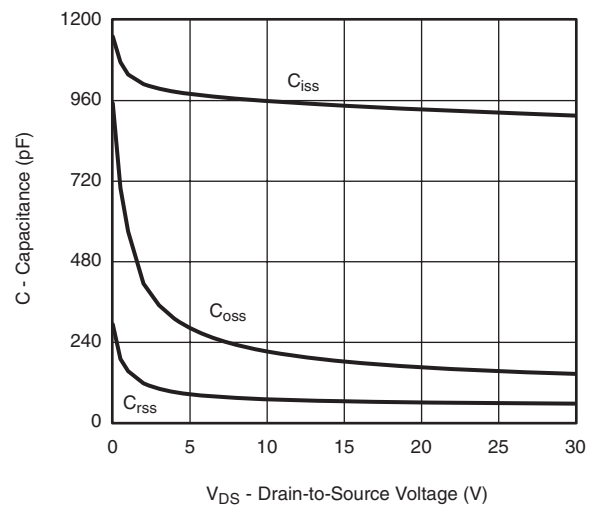
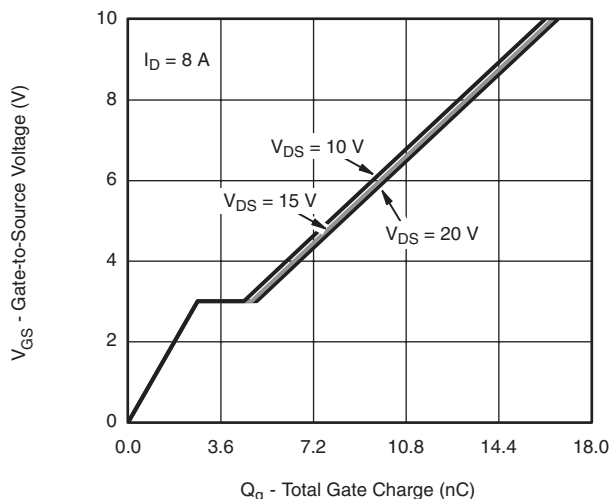
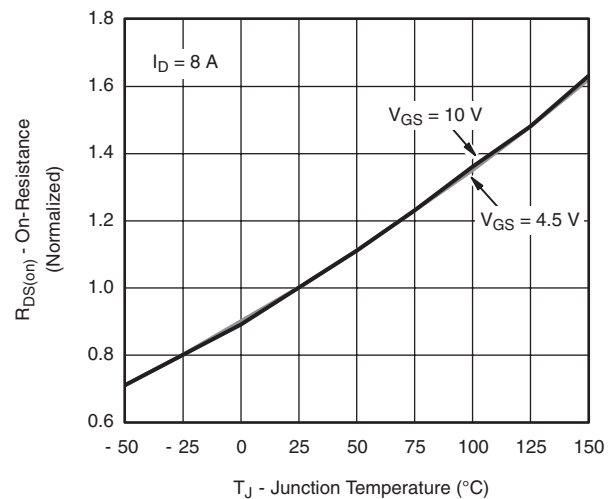
SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted								
Parameter	Symbol	Test Conditions	Min.	Typ. ^a	Max.	Unit		
Dynamic ^a								
Turn-On Delay Time	$t_{d(on)}$	Channel-1 $V_{DD} = 15\text{ V}$, $R_L = 3\text{ }\Omega$ $I_D \cong 5\text{ A}$, $V_{GEN} = 10\text{ V}$, $R_g = 1\text{ }\Omega$	Ch-1		9	18	ns	
			Ch-2		10	20		
Rise Time	t_r		Ch-1		11	20		
			Ch-2		10	20		
Turn-Off Delay Time	$t_{d(off)}$	Channel-2 $V_{DD} = 15\text{ V}$, $R_L = 3\text{ }\Omega$ $I_D \cong 5\text{ A}$, $V_{GEN} = 10\text{ V}$, $R_g = 1\text{ }\Omega$	Ch-1		18	35		
			Ch-2		18	35		
Fall Time	t_f		Ch-1		8	16		
			Ch-2		9	18		
Turn-On Delay Time	$t_{d(on)}$	Channel-1 $V_{DD} = 15\text{ V}$, $R_L = 3\text{ }\Omega$ $I_D \cong 5\text{ A}$, $V_{GEN} = 4.5\text{ V}$, $R_g = 1\text{ }\Omega$	Ch-1		17	35		
			Ch-2		17	35		
Rise Time	t_r		Ch-1		12	24		
			Ch-2		12	24		
Turn-Off Delay Time	$t_{d(off)}$	Channel-2 $V_{DD} = 15\text{ V}$, $R_L = 3\text{ }\Omega$ $I_D \cong 5\text{ A}$, $V_{GEN} = 4.5\text{ V}$, $R_g = 1\text{ }\Omega$	Ch-1		18	35		
			Ch-2		19	35		
Fall Time	t_f		Ch-1		10	20		
			Ch-2		10	20		
Drain-Source Body Diode Characteristics								
Continuous Source-Drain Diode Current	I_S	$T_C = 25\text{ }^{\circ}\text{C}$	Ch-1			2.6	A	
			Ch-2			2.6		
Pulse Diode Forward Current ^a	I_{SM}		Ch-1			30		
			Ch-2			30		
Body Diode Voltage	V_{SD}	$I_S = 1\text{ A}$	Ch-1		0.74	1.1	V	
			Ch-2		0.46	0.51		
Body Diode Reverse Recovery Time	t_{rr}	Channel-1 $I_F = 5\text{ A}$, $dl/dt = 100\text{ A}/\mu\text{s}$, $T_J = 25\text{ }^{\circ}\text{C}$	Ch-1		17	34	ns	
			Ch-2		17	34		
Body Diode Reverse Recovery Charge	Q_{rr}		Channel-2 $I_F = 5\text{ A}$, $dl/dt = 100\text{ A}/\mu\text{s}$, $T_J = 25\text{ }^{\circ}\text{C}$	Ch-1		9	18	nC
				Ch-2		7	14	
Reverse Recovery Fall Time	t_a			Ch-1		10		ns
				Ch-2		9		
Reverse Recovery Rise Time	t_b		Ch-1		7			
			Ch-2		8			

Notes:

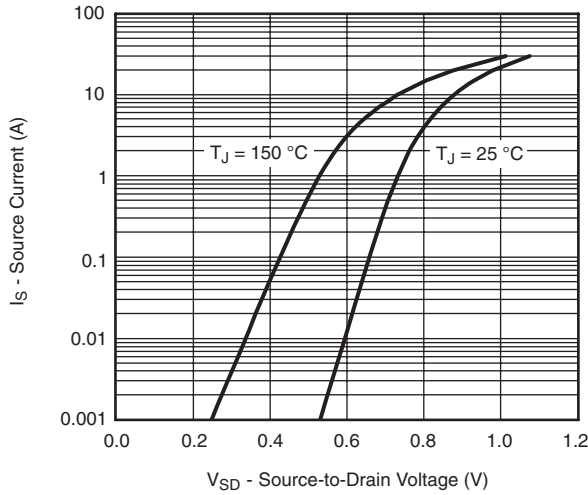
a. Guaranteed by design, not subject to production testing.

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

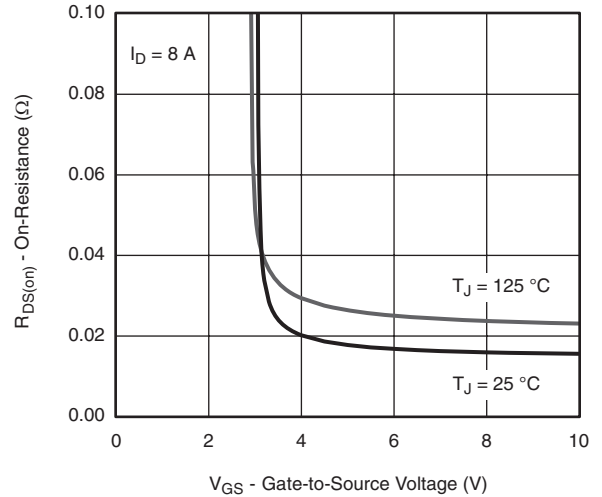
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

CHANNEL-1 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted**Output Characteristics****Transfer Characteristics****On-Resistance vs. Drain Current****Capacitance****Gate Charge****On-Resistance vs. Junction Temperature**

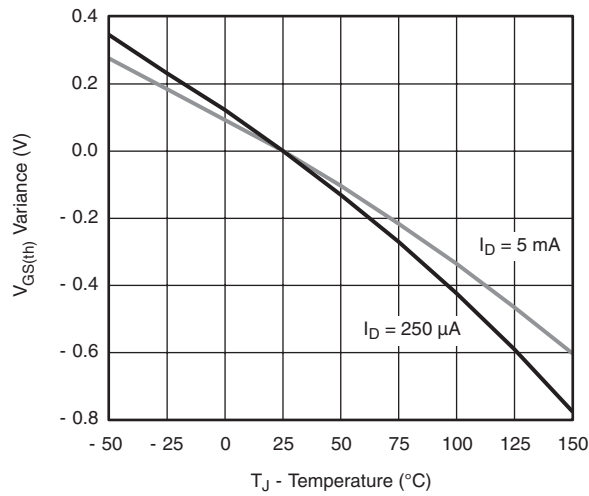
CHANNEL-1 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



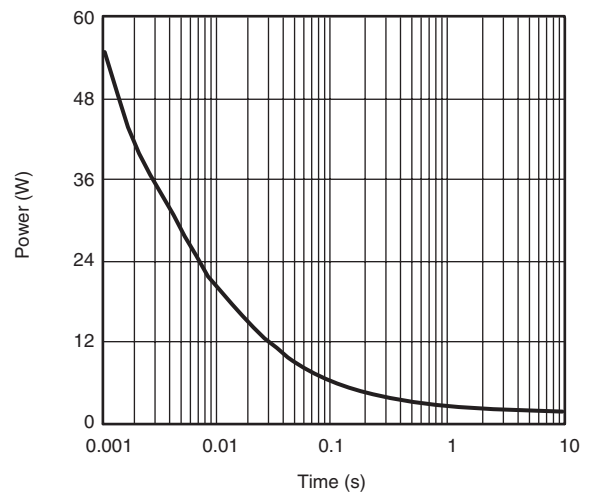
Source-Drain Diode Forward Voltage



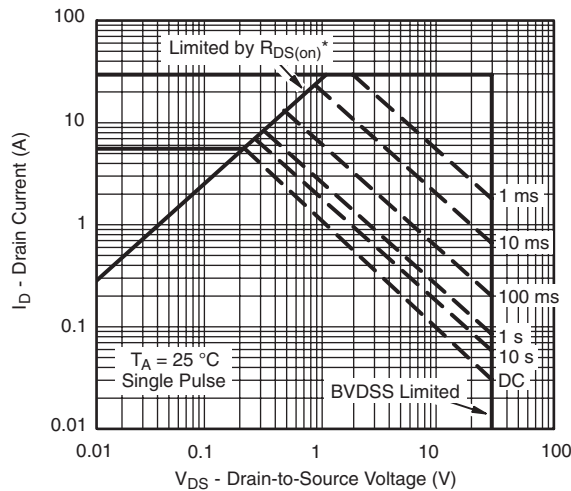
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



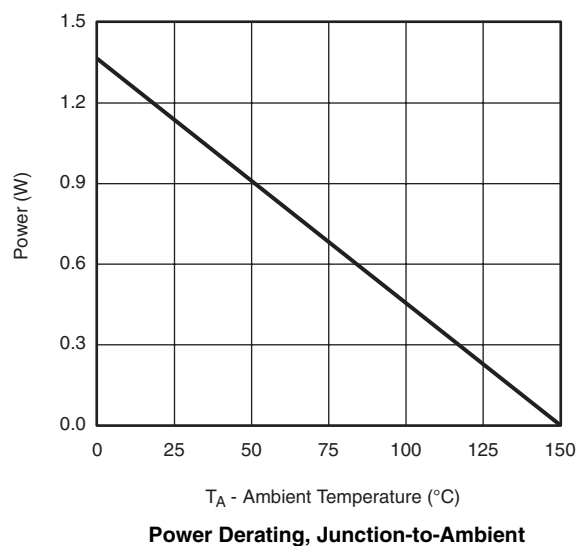
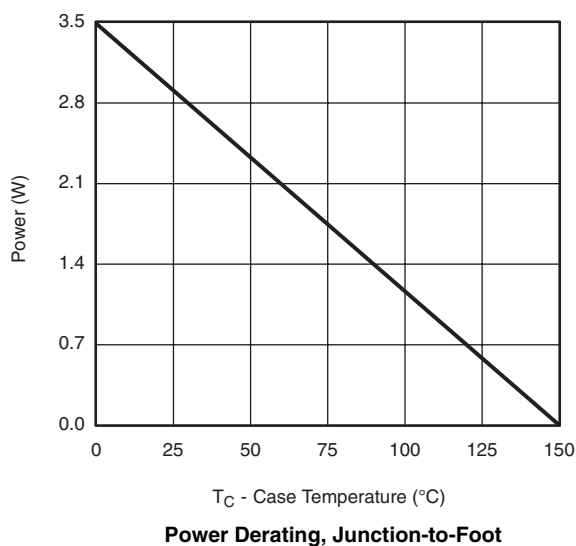
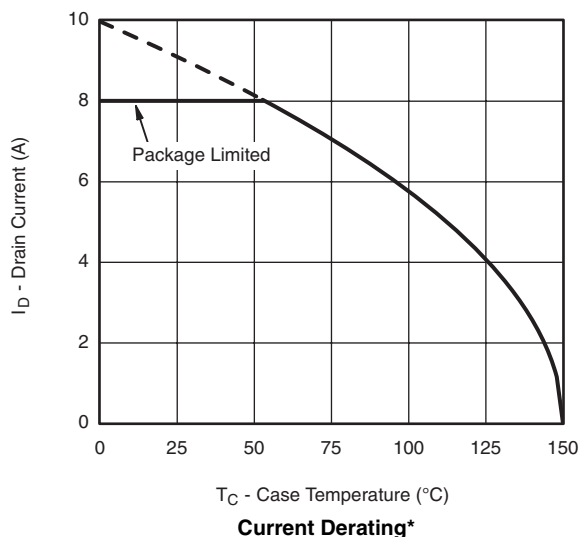
Single Pulse Power, Junction-to-Ambient



* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

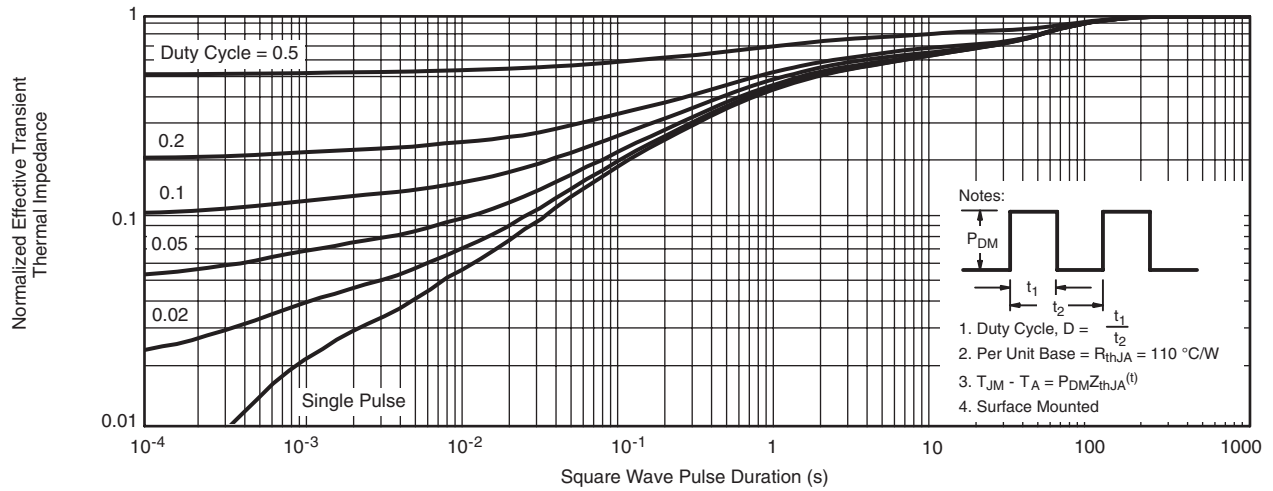
Safe Operating Area, Junction-to-Ambient

CHANNEL-1 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

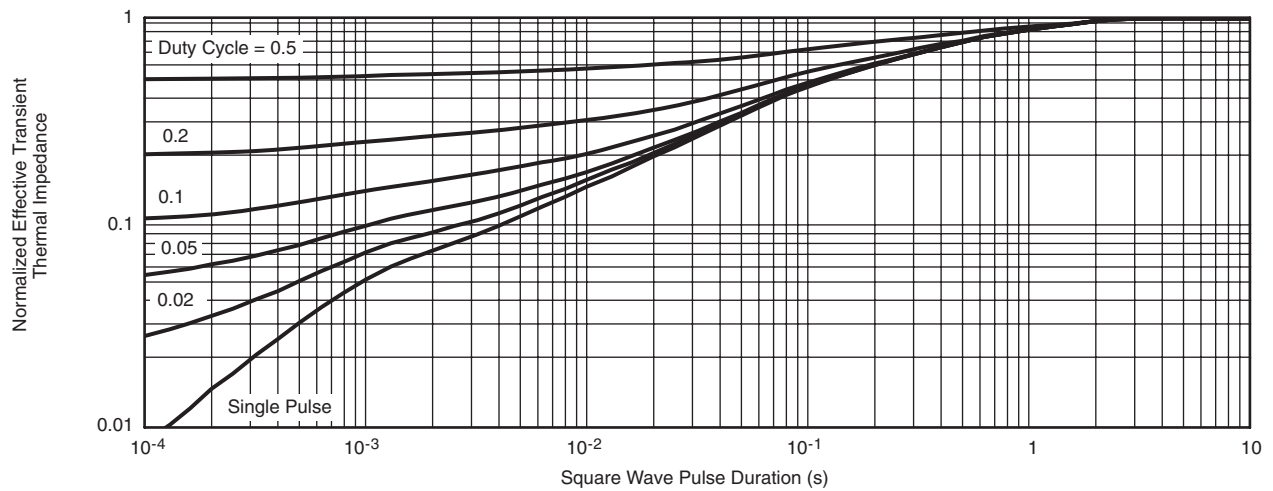


* The power dissipation P_D is based on $T_{J(max)} = 150$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

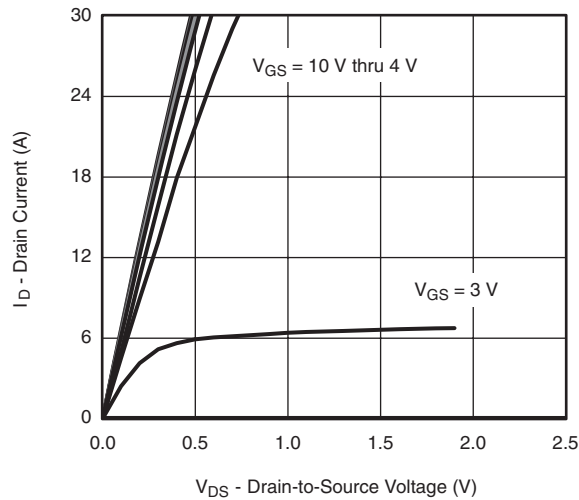
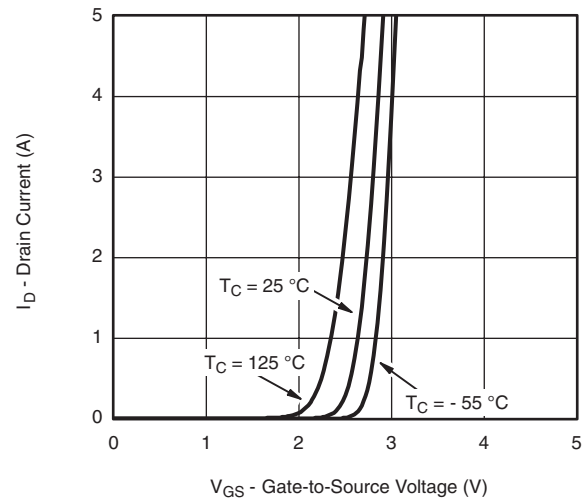
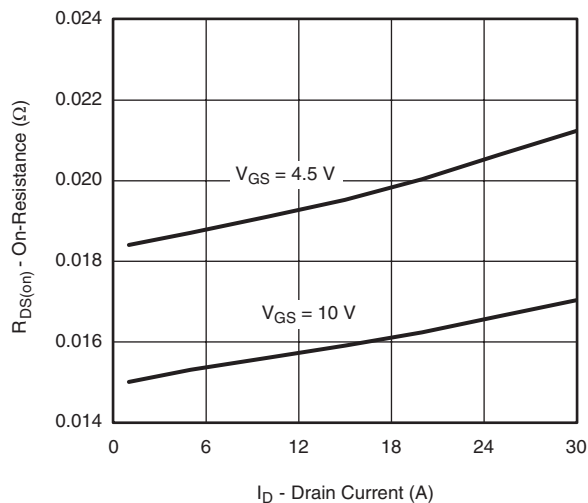
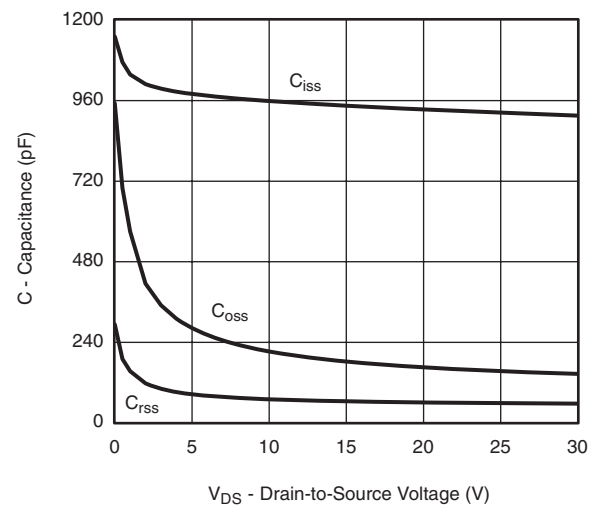
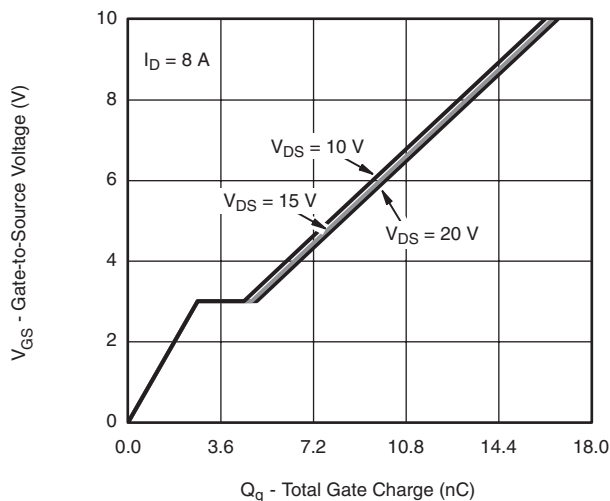
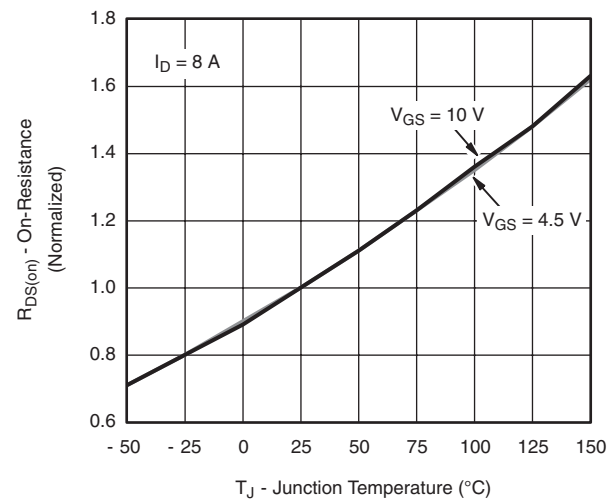
CHANNEL-1 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



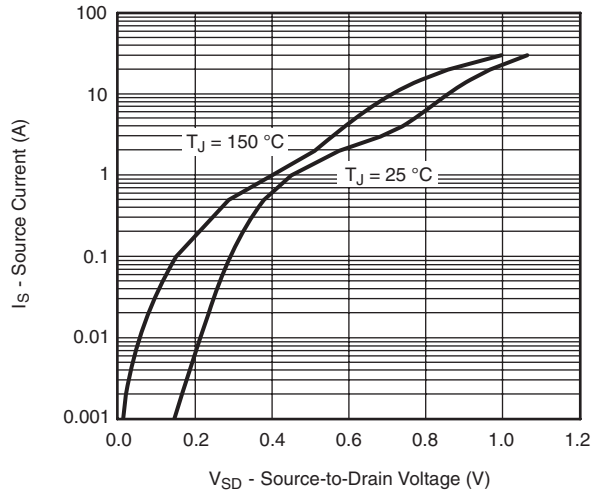
Normalized Thermal Transient Impedance, Junction-to-Ambient



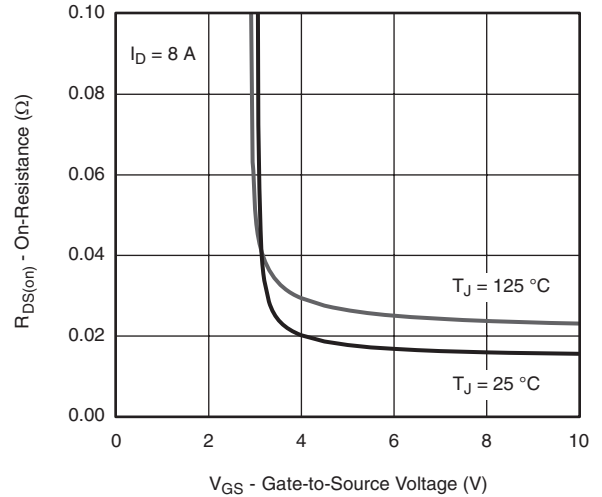
Normalized Thermal Transient Impedance, Junction-to-Foot

CHANNEL-2 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted**Output Characteristics****Transfer Characteristics****On-Resistance vs. Drain Current****Capacitance****Gate Charge****On-Resistance vs. Junction Temperature**

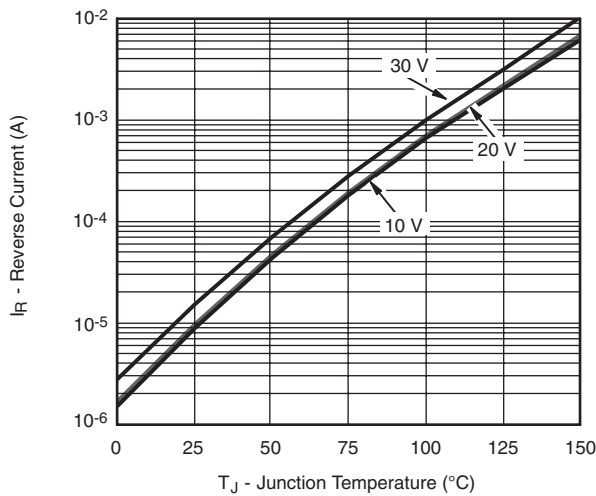
CHANNEL-2 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



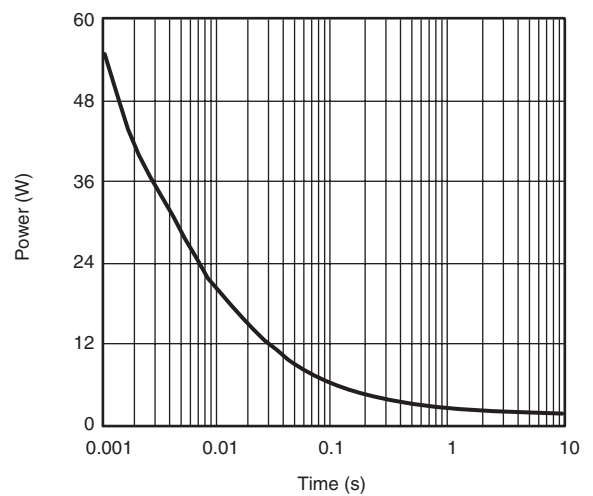
Source-Drain Diode Forward Voltage



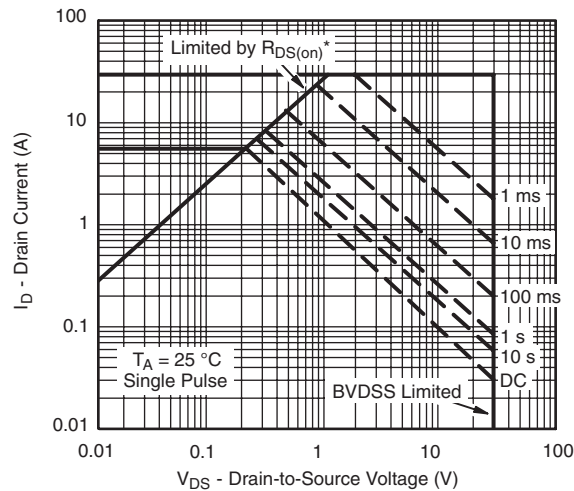
On-Resistance vs. Gate-to-Source Voltage



Reverse Current (Schottky)



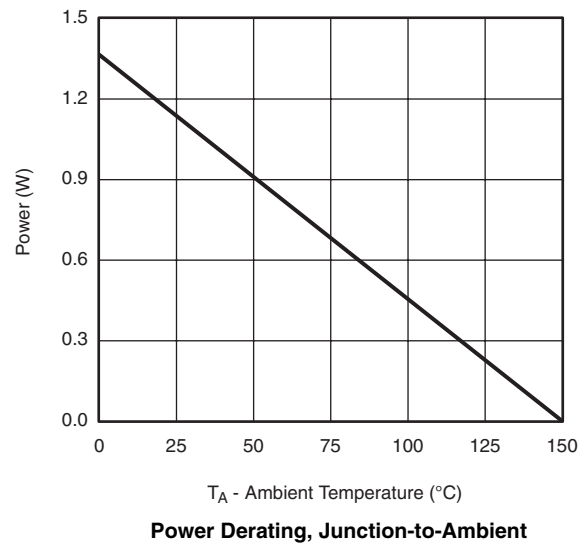
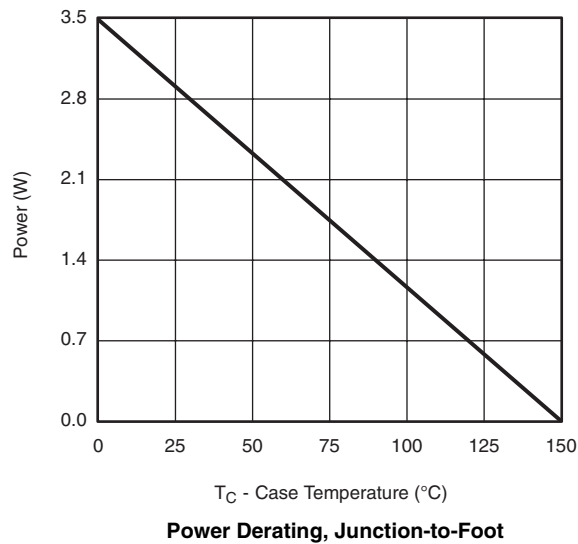
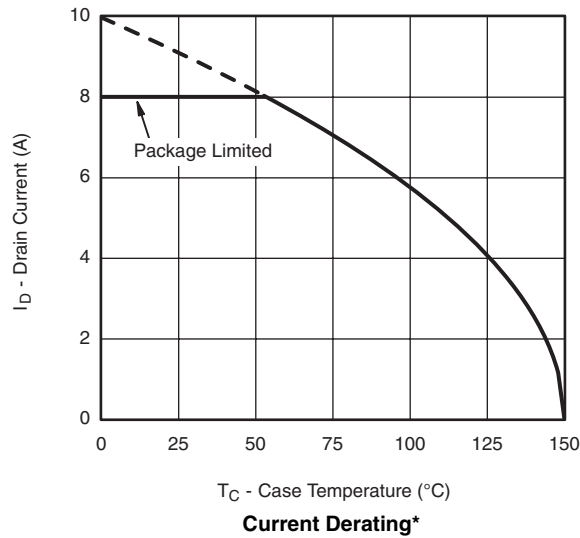
Single Pulse Power, Junction-to-Ambient



* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

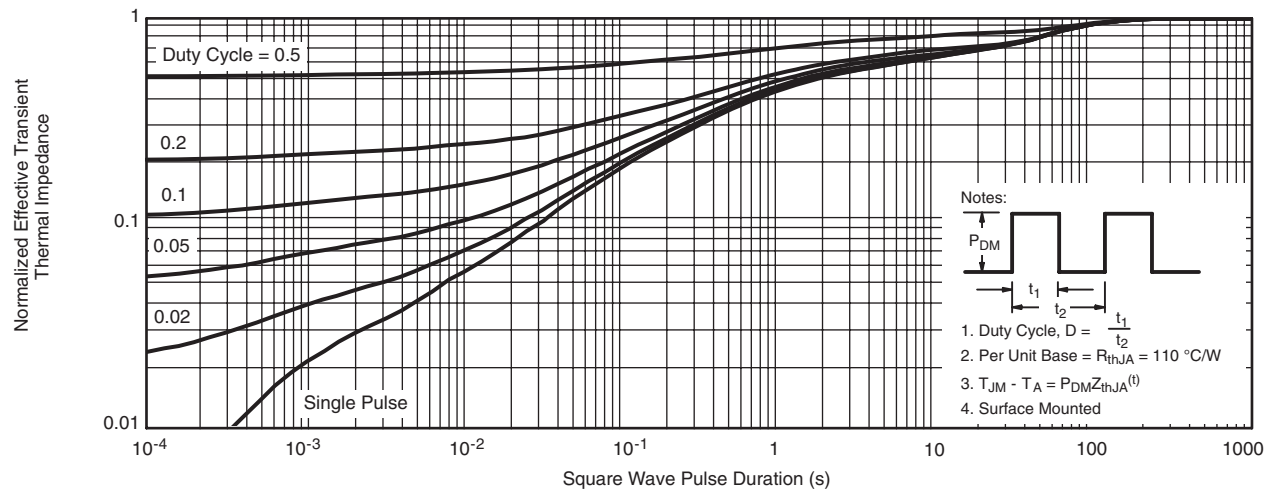
Safe Operating Area, Junction-to-Ambient

CHANNEL-2 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

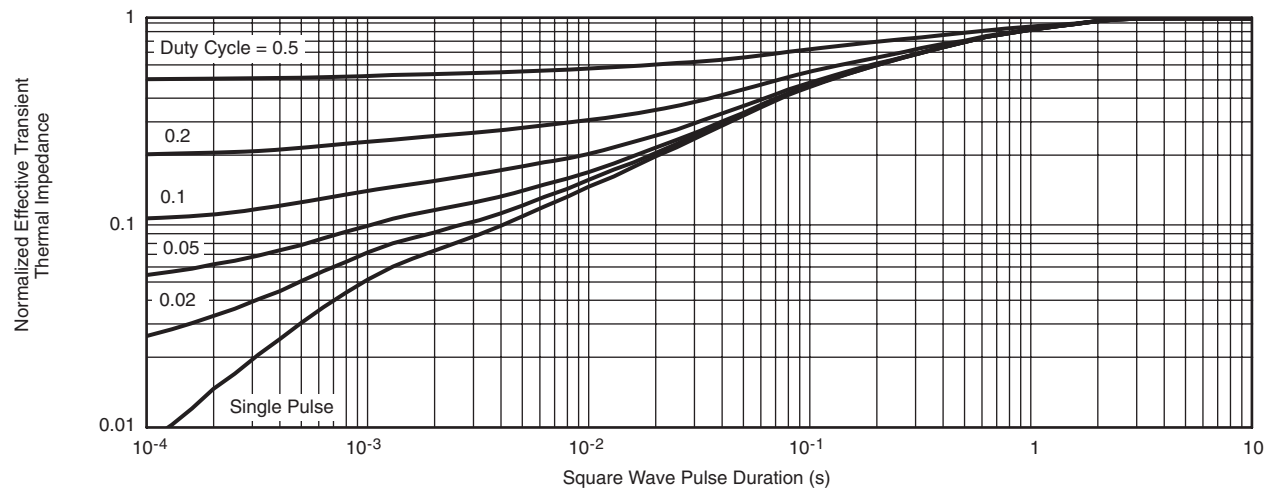


* The power dissipation P_D is based on $T_{J(max)} = 150$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

CHANNEL-2 TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

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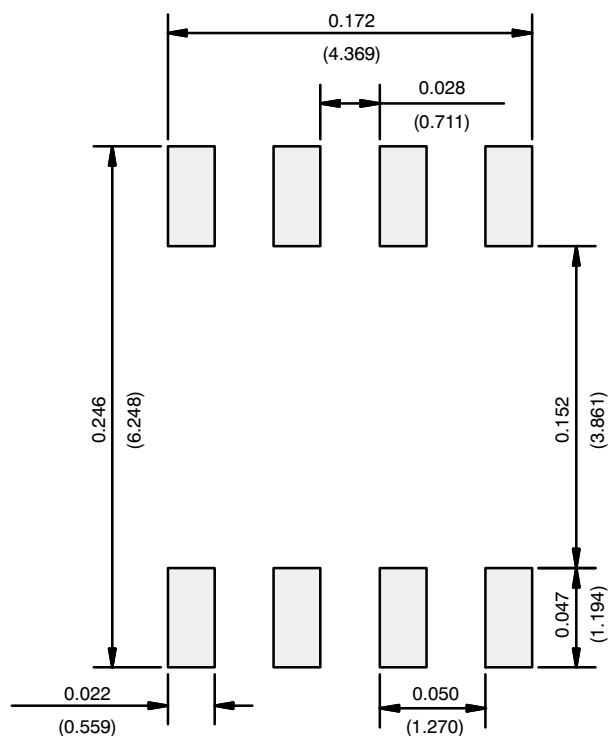
SOIC (NARROW): 8-LEAD

JEDEC Part Number: MS-012



DIM	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A ₁	0.10	0.20	0.004	0.008
B	0.35	0.51	0.014	0.020
C	0.19	0.25	0.0075	0.010
D	4.80	5.00	0.189	0.196
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.50	0.93	0.020	0.037
q	0°	8°	0°	8°
S	0.44	0.64	0.018	0.026
ECN: C-06527-Rev. I, 11-Sep-06				
DWG: 5498				

RECOMMENDED MINIMUM PADS FOR SO-8



Recommended Minimum Pads
Dimensions in Inches/(mm)

[Return to Index](#)



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