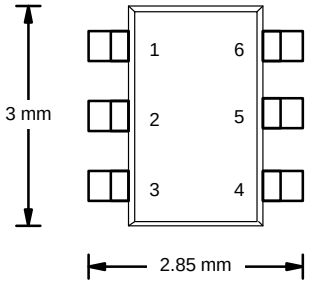
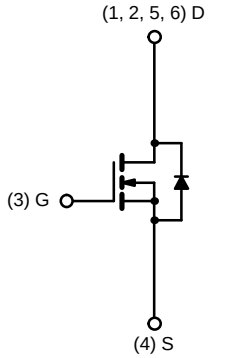
N-Channel 100-V (D-S) MOSFET

High-Efficiency PWM Optimized

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
100	0.170 @ V_{GS} = 10 V	2.4
	0.185 @ V_{GS} = 6.0 V	2.3

TSOP-6
Top View





N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	100		V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current (T_J = 175°C)[a]	T_A = 25°C	I_D	2.4	1.8	A
	T_A = 85°C		1.7	1.3	
Pulsed Drain Current		I_{DM}	8		
Avalanche Current	L = 0.1 mH	I_{AR}	6		
Repetitive Avalanche Energy (Duty Cycle ≤ 1%)		E_{AR}	1.8		mJ
Continuous Source Current (Diode Conduction)[a]		I_S	1.7	1.0	A
Maximum Power Dissipation[a]	T_A = 25°C	P_D	2.0	1.14	W
	T_A = 85°C		1.0	0.59	
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}	45	62.5	°C/W
	Steady State		90	110	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	25	30	

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

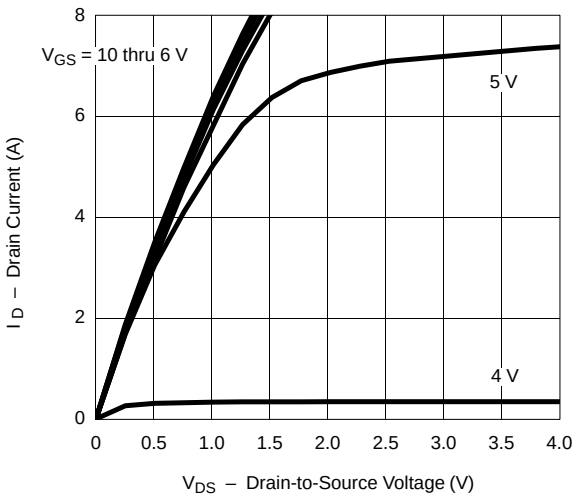
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	2			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} = 80 V, V_{GS} = 0 V			1	μA
		V_{DS} = 80 V, V_{GS} = 0 V, T_J = 85°C			25	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} ≥ 5 V, V_{GS} = 10 V	8			A
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 2.4 A		0.148	0.170	Ω
		V_{GS} = 6.0 V, I_D = 2.3 A		0.160	0.185	
Forward Transconductance[a]	g_{fs}	V_{DS} = 15 V, I_D = 2.4 A		7		S
Diode Forward Voltage[a]	V_{SD}	I_S = 1.7 A, V_{GS} = 0 V		0.8	1.2	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = 50 V, V_{GS} = 10 V, I_D = 2.4 A		5.5	6.6	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			1.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 50 V, R_L = 50 Ω I_D ≅ 1 A, V_{GEN} = 10 V, R_G = 6 Ω		9	20	ns
Rise Time	t_r			11	20	
Turn-Off Delay Time	$t_{d(off)}$			16	30	
Fall Time	t_f			9	20	
Gate Resistance	R_g	V_{GS} = 0.1 V, f = 5 MHz		2.8		Ω
Source-Drain Reverse Recovery Time	t_{rr}	I_F = 1.7 A, di/dt = 100 A/μs		50	80	ns

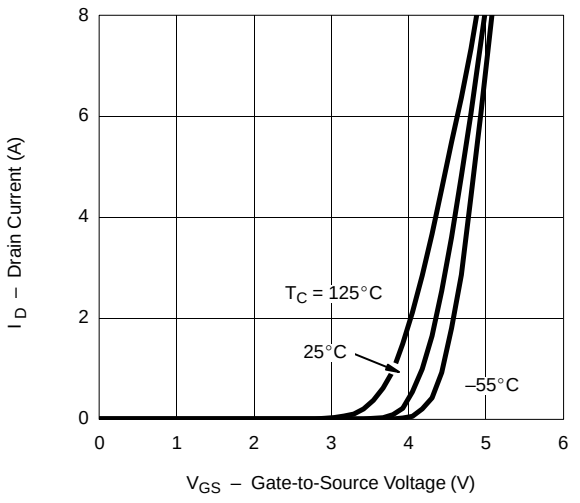
Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Output Characteristics

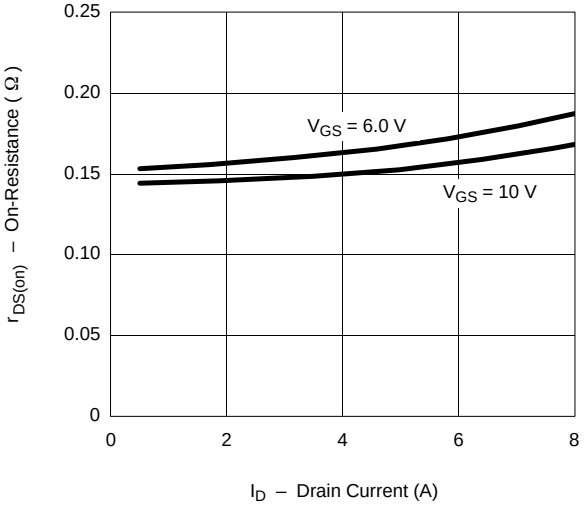


Transfer Characteristics

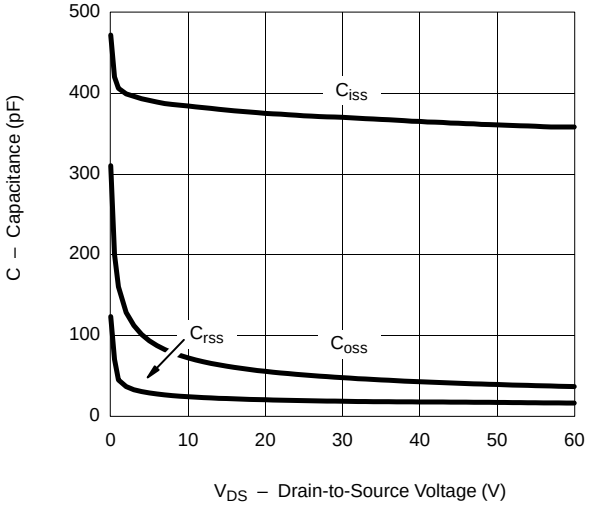


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

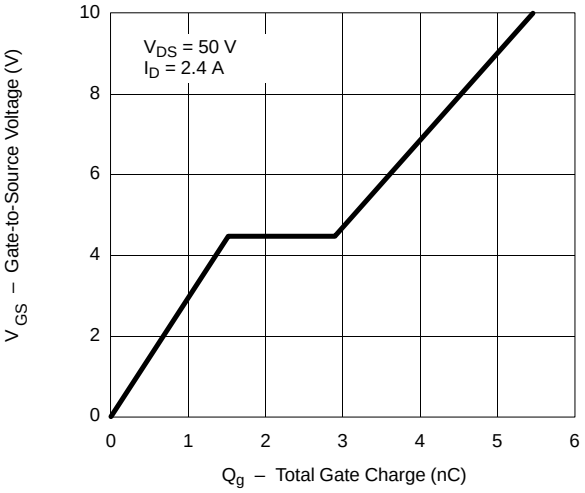
On-Resistance vs. Drain Current



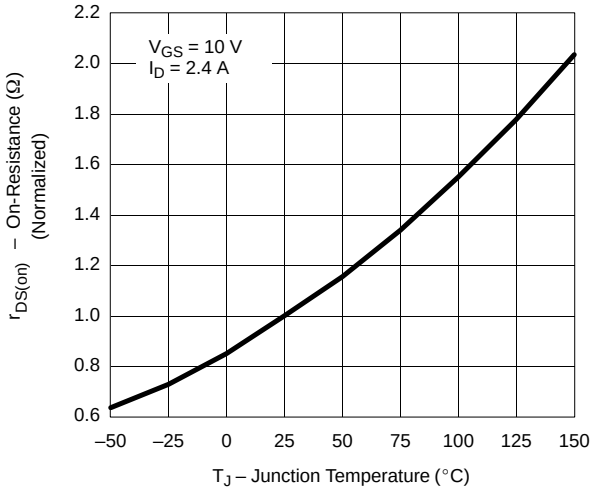
Capacitance



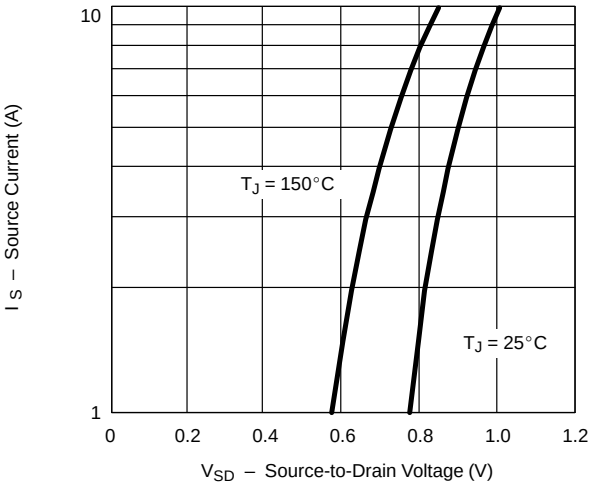
Gate Charge



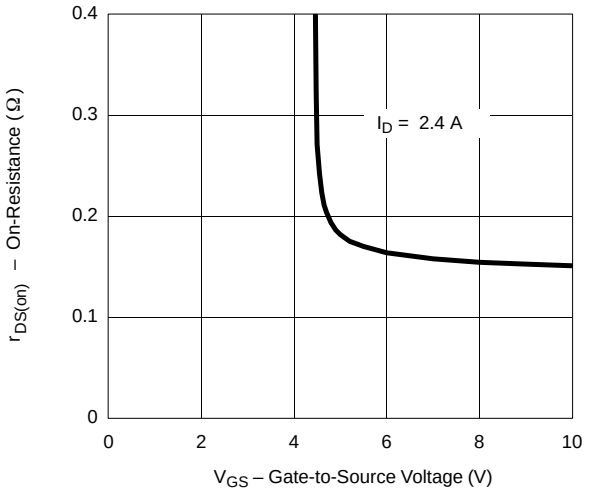
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

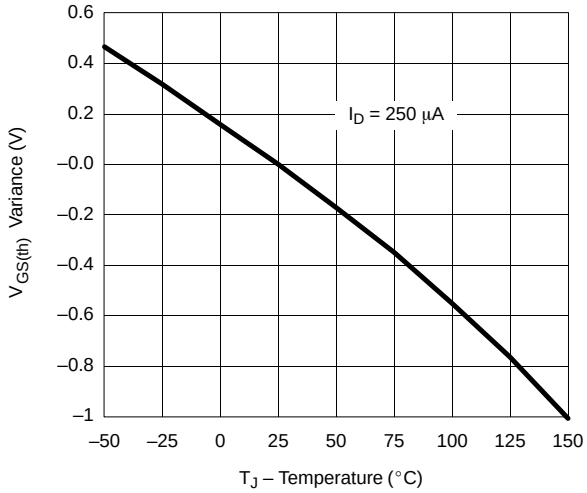


On-Resistance vs. Gate-to-Source Voltage

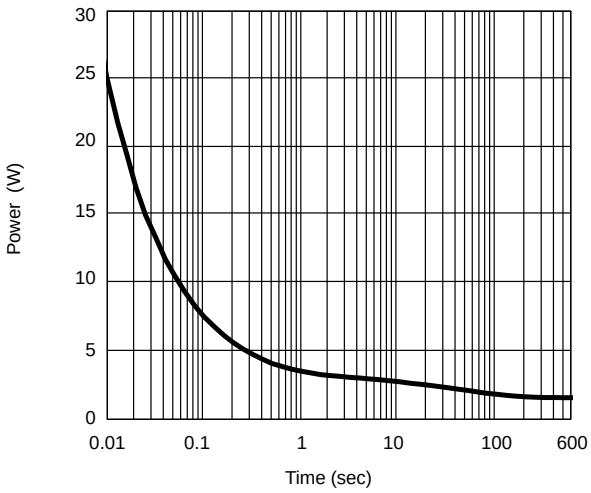


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

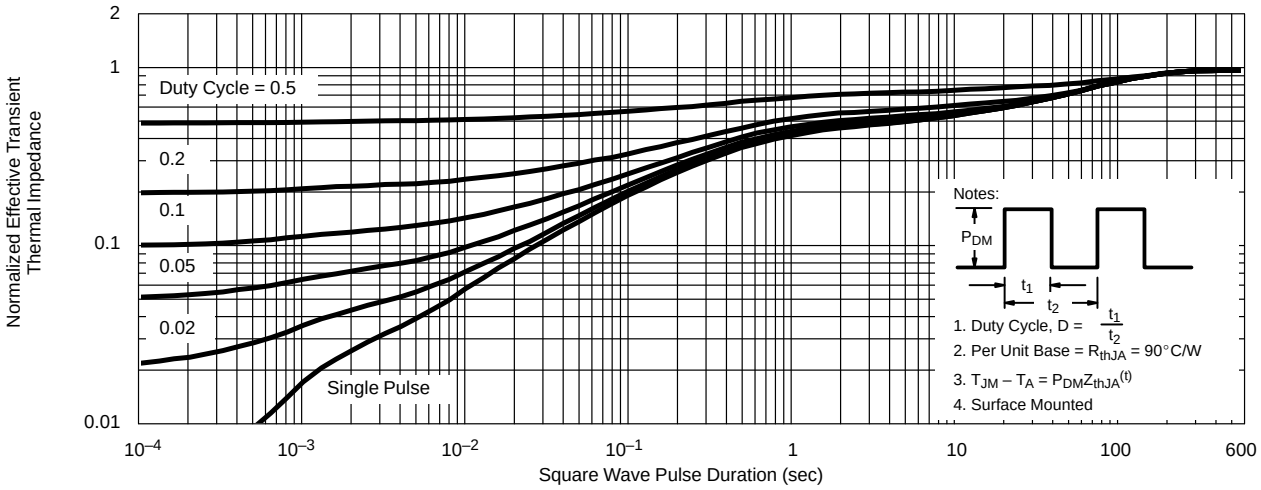
Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot