

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

PRODUCT SUMMARY

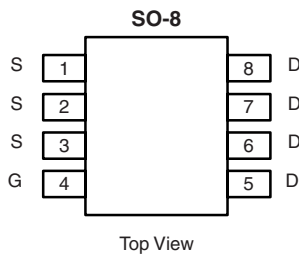
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
100	0.025 at $V_{GS} = 10$ V	7.9
	0.028 at $V_{GS} = 6.0$ V	7.5

FEATURES

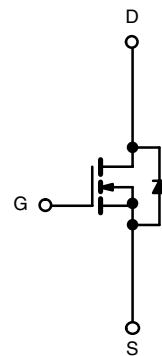
- Maximum Junction Temperature:
175 °C Rated
- High-Efficiency PWM Optimized



RoHS*
COMPLIANT



Ordering Information: Si4486EY-T1
Si4486EY-T1-E3 (Lead (Pb)-free)



N-Channel MOSFET

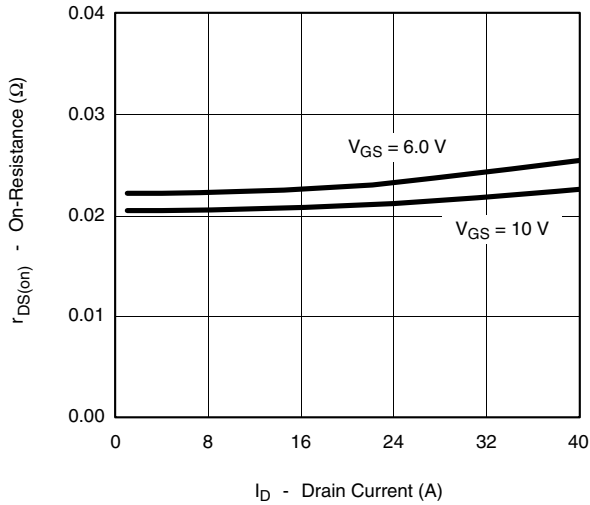
ABSOLUTE MAXIMUM RATINGS $T_A = 25$ °C, unless otherwise noted

Parameter	Symbol	10 sec	Steady State	Unit
Drain-Source Voltage	V_{DS}	100		V
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current ($T_J = 175$ °C) ^a	I_D	7.9	5.4	A
		6.1	4.2	
Pulsed Drain Current	I_{DM}	40		
Avalanche Current	I_{AR}	30		
Repetitive Avalanche Energy (Duty Cycle ≤ 1 %)	E_{AR}	45		mJ
Continuous Source Current (Diode Conduction) ^a	I_S	3.1	1.5	A
Maximum Power Dissipation ^a	P_D	3.8	1.8	W

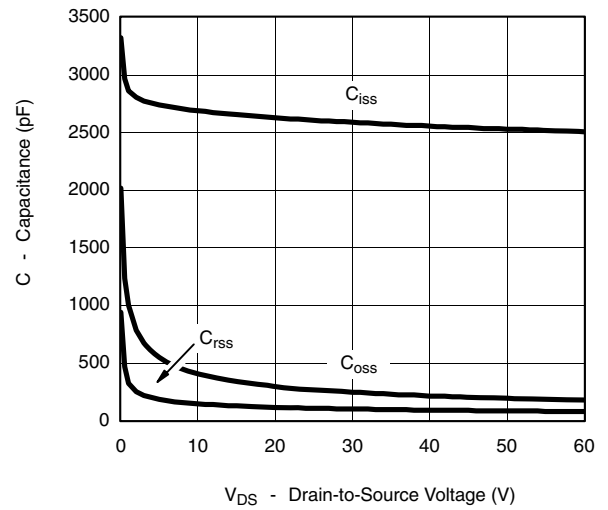
SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$	2			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}	$V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 85\text{ }^{\circ}\text{C}$			20	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}$, $V_{GS} = 10\text{ V}$	40			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 7.9\text{ A}$		0.021	0.025	Ω
		$V_{GS} = 6.0\text{ V}$, $I_D = 7.5\text{ A}$		0.023	0.028	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\text{ V}$, $I_D = 7.9\text{ A}$		35		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 3.1\text{ A}$, $V_{GS} = 0\text{ V}$		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 50\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 7.9\text{ A}$		36	44	nC
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			8.6		
Gate Resistance	R_g		0.5	1.27	2.2	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 50\text{ V}$, $R_L = 50\text{ }\Omega$ $I_D \cong 1\text{ A}$, <				

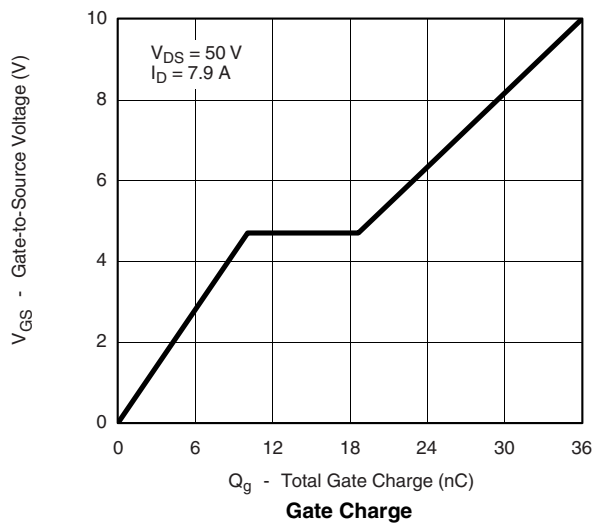
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



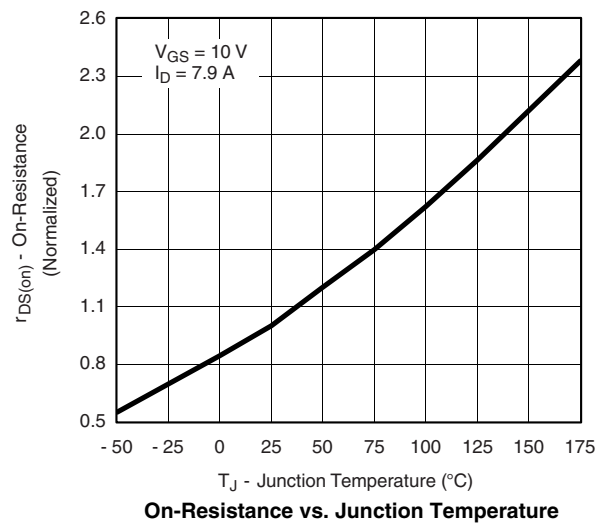
On-Resistance vs. Drain Current



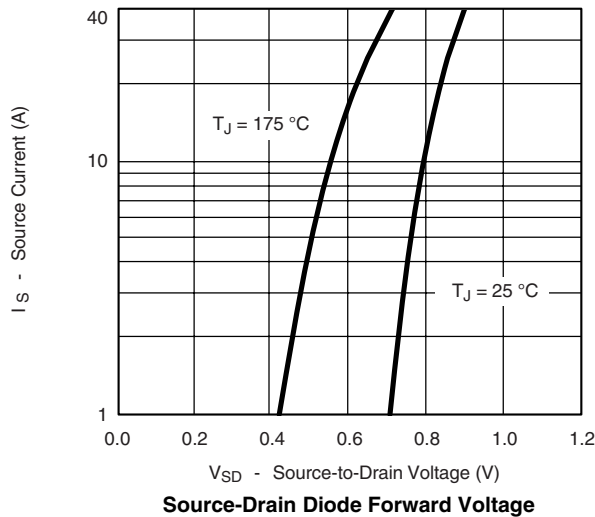
Capacitance



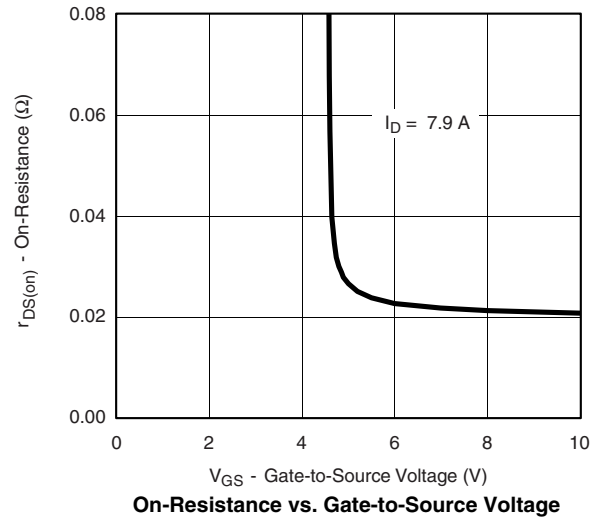
Gate Charge

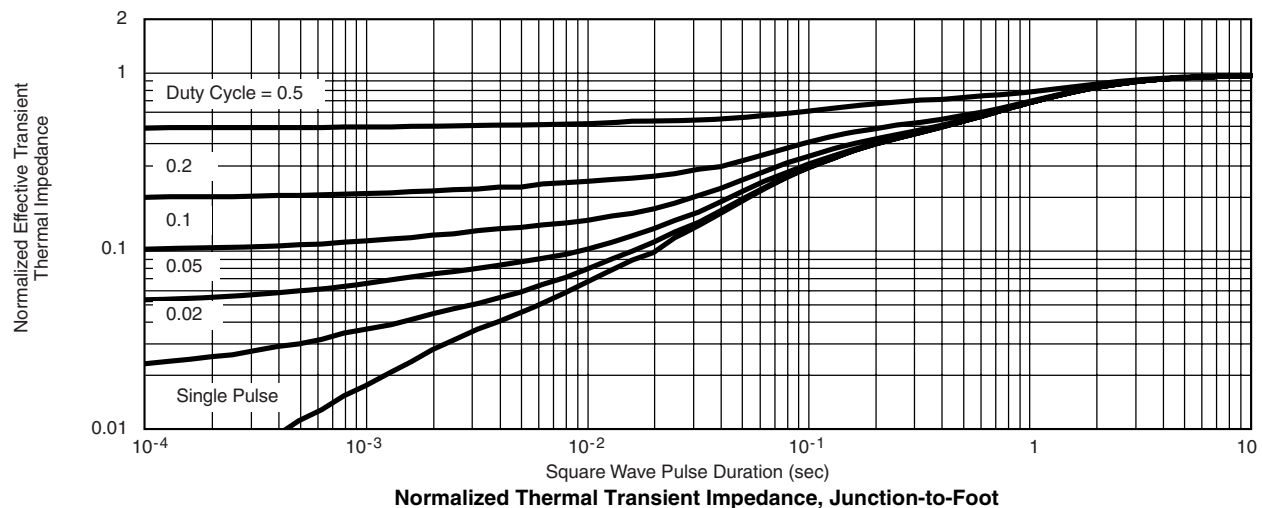
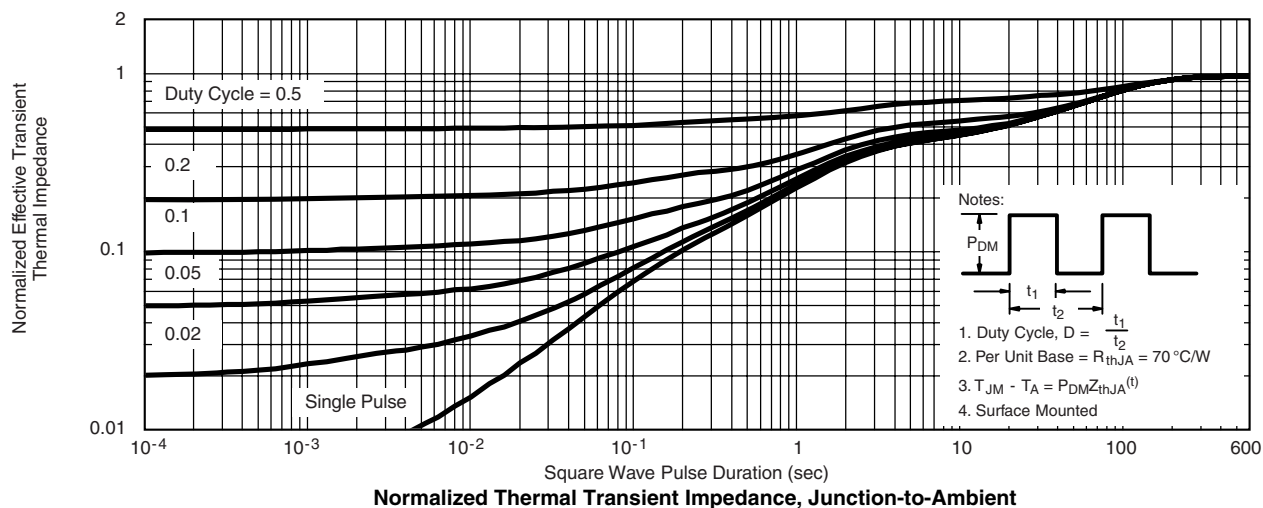
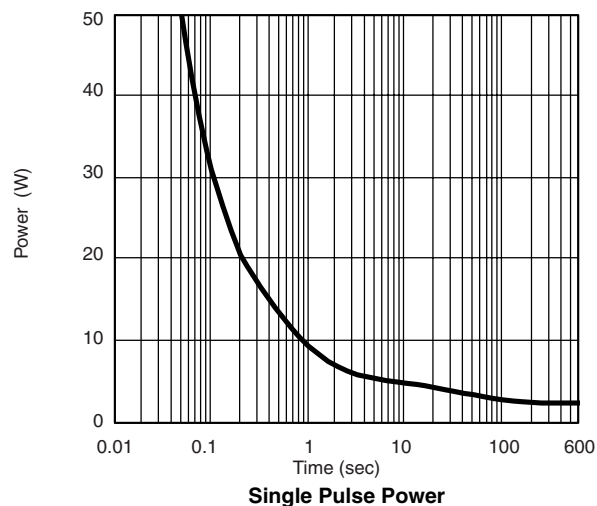
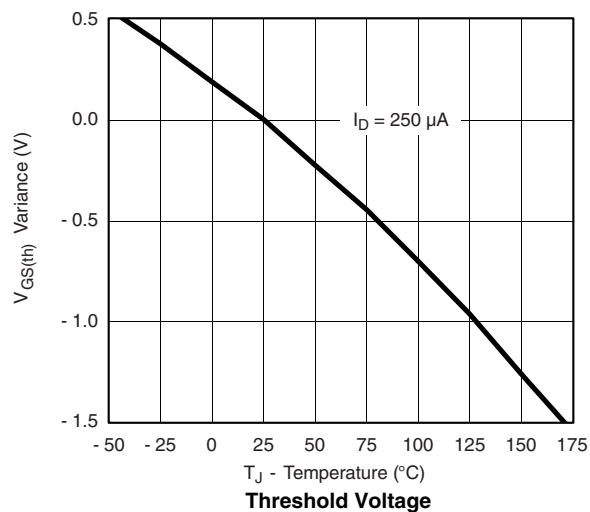


On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

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