

P-Channel 20-V (D-S), 1.5-V (G-S) MOSFET

PRODUCT SUMMARY		
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A)
- 20	0.024 at V _{GS} = - 4.5 V	- 7
	0.030 at V _{GS} = - 2.5 V	- 6.2
	0.038 at V _{GS} = - 1.8 V	- 5.2
	0.048 at V _{GS} = - 1.5 V	- 5.0

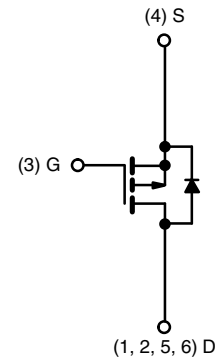
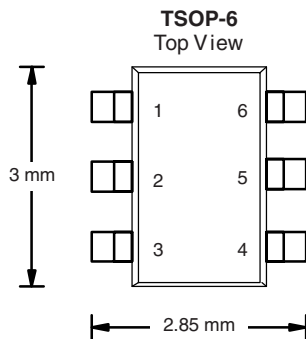
FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFET: 1.5 V Rated
- Ultra-Low On-Resistance
- 100 % R_g Tested
- Compliant to RoHS Directive 2002/95/EC



APPLICATIONS

- Load Switch and PA Switch for Portable Devices



P-Channel MOSFET

Ordering Information: Si3495DV-T1-E3 (Lead (Pb)-free)
Si3495DV-T1-GE3 (Lead (Pb)-free and Halogen-free)
Marking Code: 95xxx

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted				
Parameter	Symbol	5 s	Steady State	Unit
Drain-Source Voltage	V _{DS}	- 20		V
Gate-Source Voltage	V _{GS}	± 5		
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 25 °C	- 7	- 5.3	A
	T _A = 85 °C	- 3.6	- 3.9	
Pulsed Drain Current	I _{DM}	- 20		
Continuous Source Current (Diode Conduction) ^a	I _S	- 1.7	- 0.9	
Maximum Power Dissipation ^a	T _A = 25 °C	2.0	1.1	W
	T _A = 85 °C	1.0	0.6	
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 s	45	62.5	°C/W	
	Steady State	90	110		
Maximum Junction-to-Foot (Drain)	Steady State	25	30		

Note:
a. Surface Mounted on 1" x 1" FR4 board.

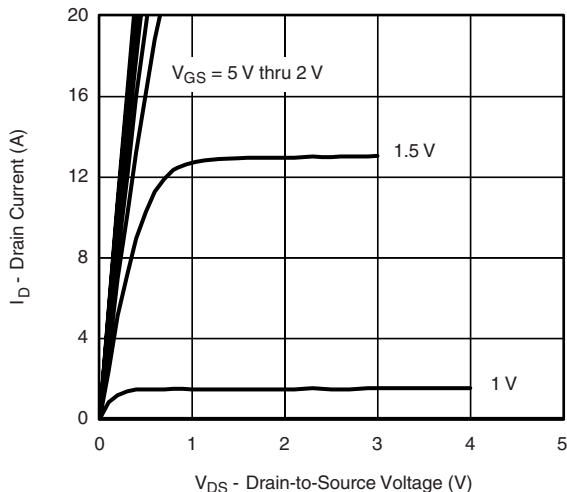
SPECIFICATIONS $T_J = 25^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.35		-0.75	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 5\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -20\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 85^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-20			A
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = -4.5\ \text{V}, I_D = -7\ \text{A}$		0.020	0.024	Ω
		$V_{GS} = -2.5\ \text{V}, I_D = -6.2\ \text{A}$		0.024	0.030	
		$V_{GS} = -1.8\ \text{V}, I_D = -5.2\ \text{A}$		0.030	0.038	
		$V_{GS} = -1.5\ \text{V}, I_D = -3\ \text{A}$		0.036	0.048	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -5\ \text{V}, I_D = -7\ \text{A}$		25		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.7\ \text{A}, V_{GS} = 0\ \text{V}$		-0.62	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -7\ \text{A}$		25	38	nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			7		
Gate Resistance	R_g		4	8.5	13	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}, R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -4.5\ \text{V}, R_g = 6\ \Omega$		19	30	ns
Rise Time	t_r			36	55	
Turn-Off Delay Time	$t_{d(off)}$			200	300	
Fall Time	t_f			106	160	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.7\ \text{A}, dI/dt = 100\ \text{A}/\mu\text{s}$		35	60	

Notes:

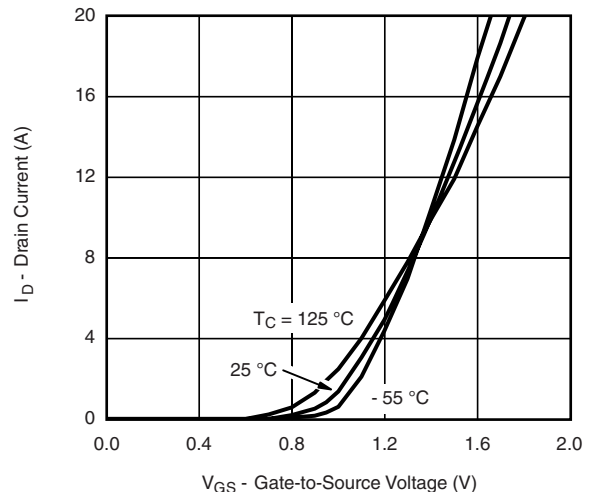
- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- b. Guaranteed by design, not subject to production testing.

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.

TYPICAL CHARACTERISTICS 25°C , unless otherwise noted

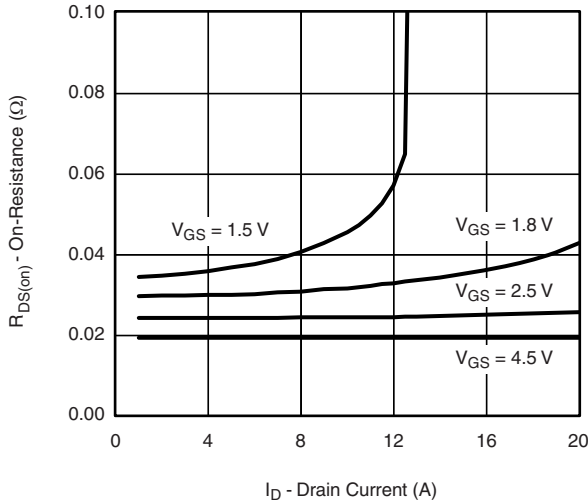


Output Characteristics

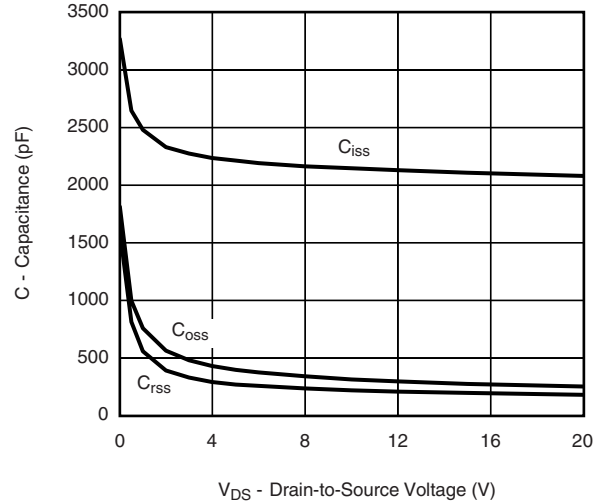


Transfer Characteristics

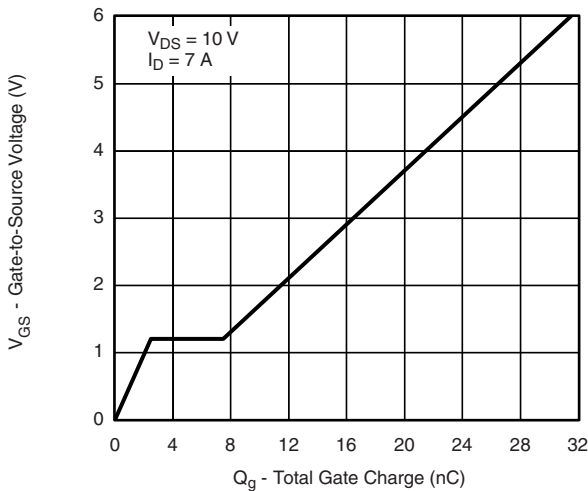
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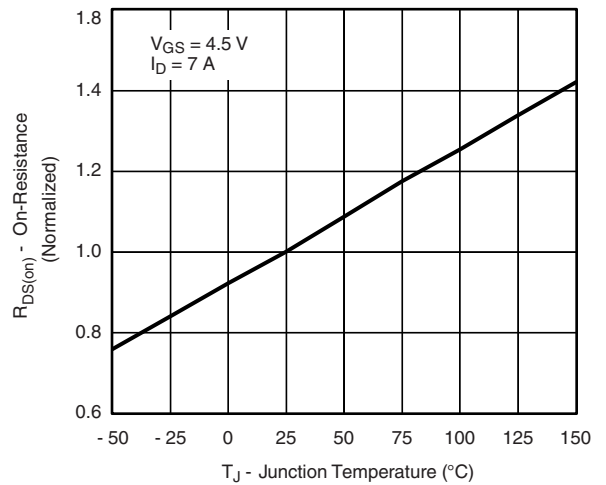
On-Resistance vs. Drain Current



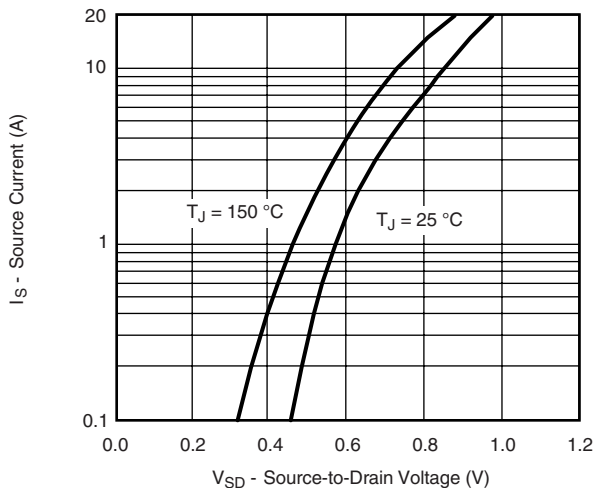
Capacitance



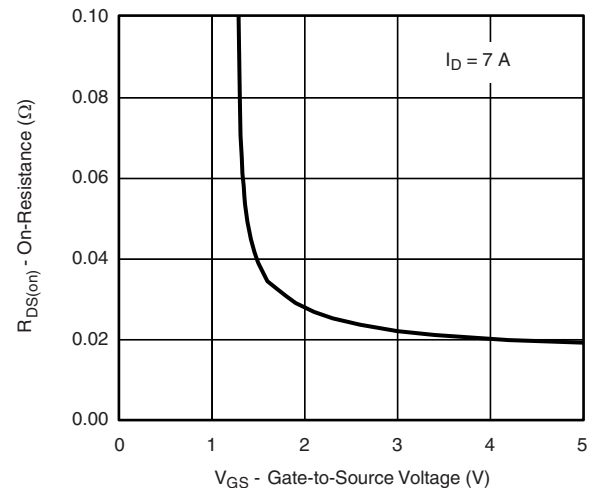
Gate Charge



On-Resistance vs. Junction Temperature

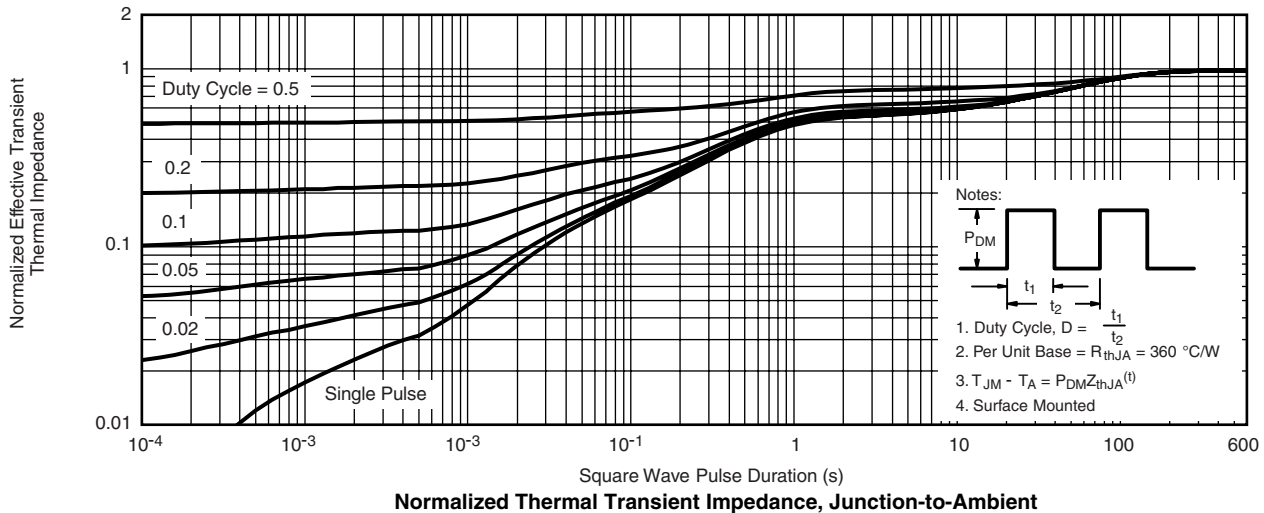
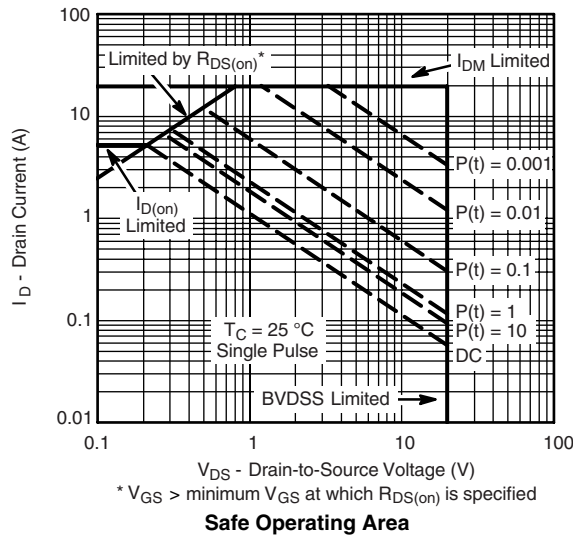
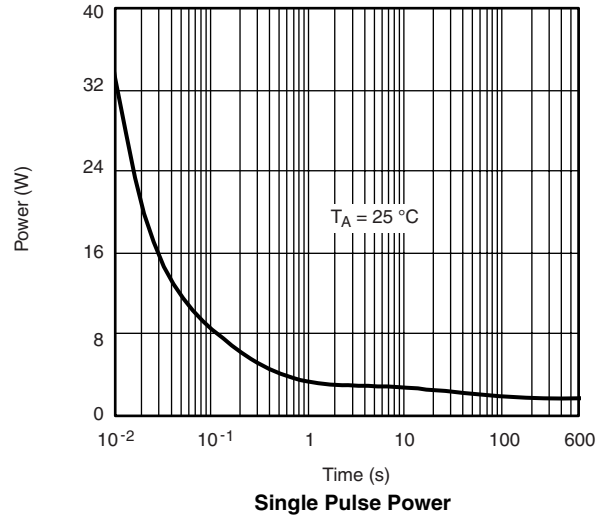
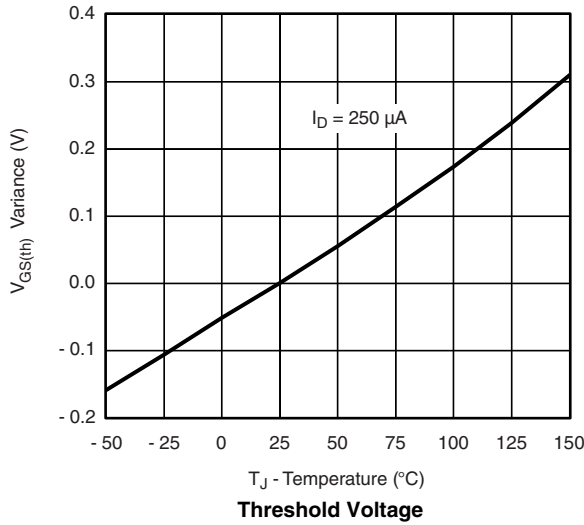


Source-Drain Diode Forward Voltage

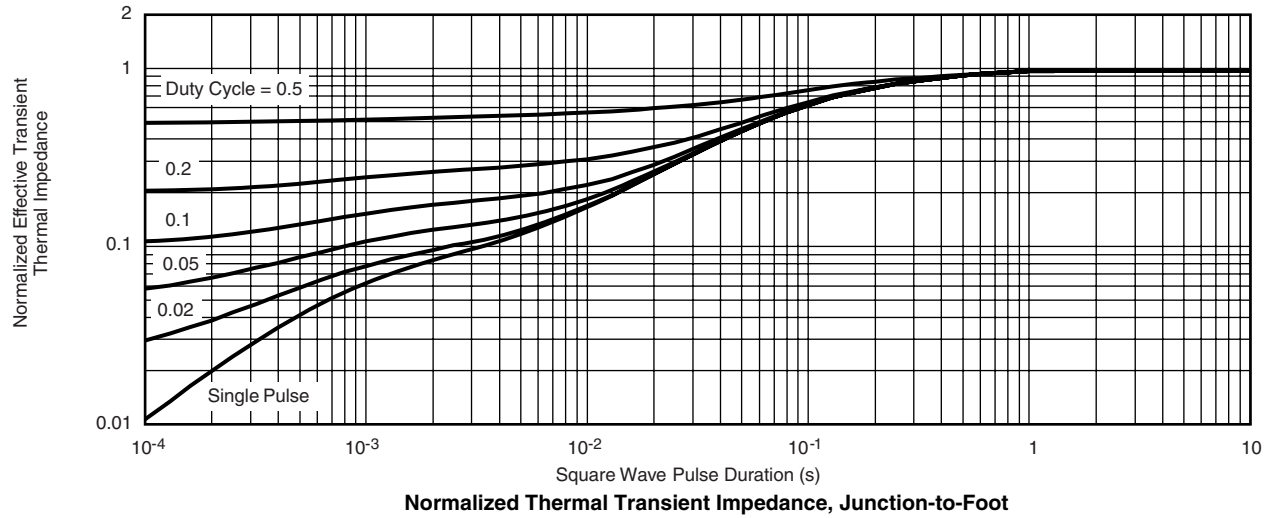


On-Resistance vs. Gate-to-Source Voltage

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



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