

P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
- 30	0.0057 at $V_{GS} = - 10$ V	- 24
	0.0095 at $V_{GS} = - 4.5$ V	- 17

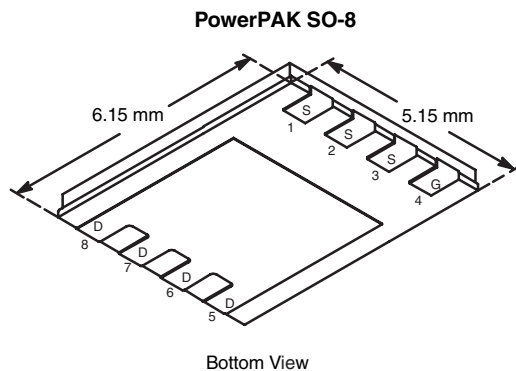
FEATURES

- TrenchFET[®] Power MOSFETS
- New Low Thermal Resistance PowerPAK[®] Package with Low 1.07 mm Profile
- 100 % R_G tested

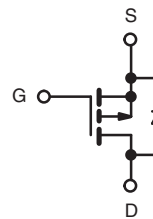


APPLICATIONS

- Battery and Load Switching
 - Notebook Computers
 - Notebook Battery Packs



Ordering Information: Si7483ADP-T1-E3 (Lead (Pb)-Free)



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS $T_A = 25$ °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 ($T_J = 150$ °C) ^a	I_D	$T_A = 25$ °C	- 24	- 14	A
		$T_A = 70$ °C	- 19	- 11	
Pulsed Drain Current	I_{DM}	- 60			
Continuous Source Current (Diode Conduction) ^a	I_S	- 4.5	- 1.6		
Maximum Power Dissipation ^a	P_D	$T_A = 25$ °C	5.4	1.9	W
		$T_A = 70$ °C	3.4	1.2	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 150		°C	
Soldering Recommendations (Peak Temperature) ^{b,c}		260			

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	R_{thJA}	$t \leq 10$ sec	18	23	°C/W
		Steady State	50	65	
Maximum Junction-to-Case (Drain)	R_{thJC}	1.0	1.5		

Notes:

- a. Surface Mounted on 1" x 1" FR4 Board.
 b. See Solder Profile (<http://www.vishay.com/ppg?73257>). The PowerPAK SO-8 is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.
 c. Rework Conditions: manual soldering with a soldering iron is not recommended for leadless components.

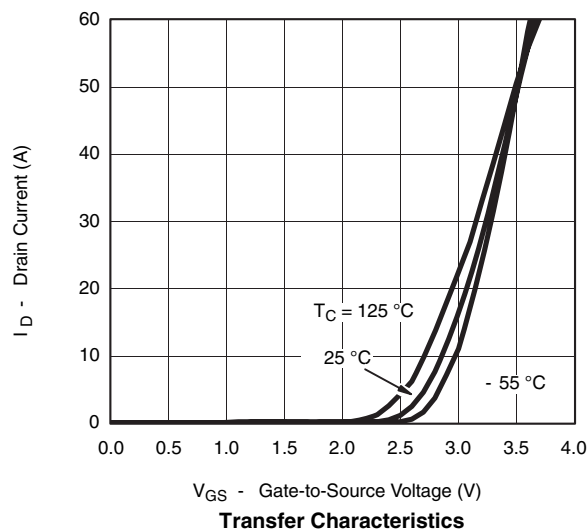
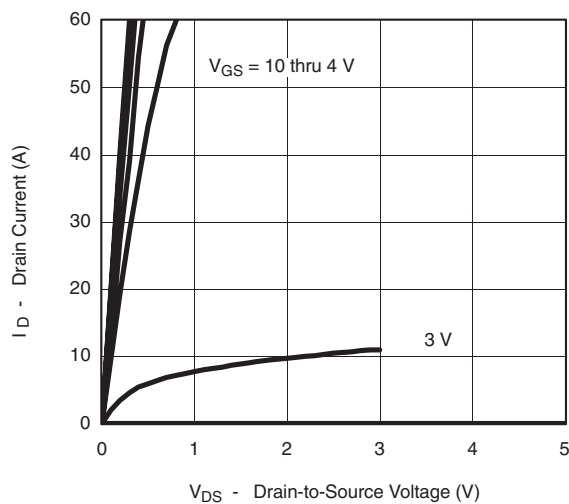
SPECIFICATIONS $T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$	-1.0		-3.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}, T_J = 70\text{ }^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\text{ V}, V_{GS} = -10\text{ V}$	-30			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -24\text{ A}$		0.0047	0.0057	Ω
		$V_{GS} = -4.5\text{ V}, I_D = -17\text{ A}$		0.0075	0.0095	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -15\text{ V}, I_D = -24\text{ A}$		70		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -2.9\text{ A}, V_{GS} = 0\text{ V}$		-0.73	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -15\text{ V}, V_{GS} = -10\text{ V}, I_D = -24\text{ A}$		120	180	nC
Gate-Source Charge	Q_{gs}			18		
Gate-Drain Charge	Q_{gd}			33		
Gate Resistance	R_g		1.6	3.2	4.8	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\text{ V}, R_L = 15\text{ }\Omega$ $I_D \cong -1.0\text{ A}, V_{GEN} = -10\text{ V}, R_G = 6\text{ }\Omega$		22	35	ns
Rise Time	t_r			33	50	
Turn-Off Delay Time	$t_{d(off)}$			210	320	
Fall Time	t_f			130	200	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.9\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		70	130	

Notes:

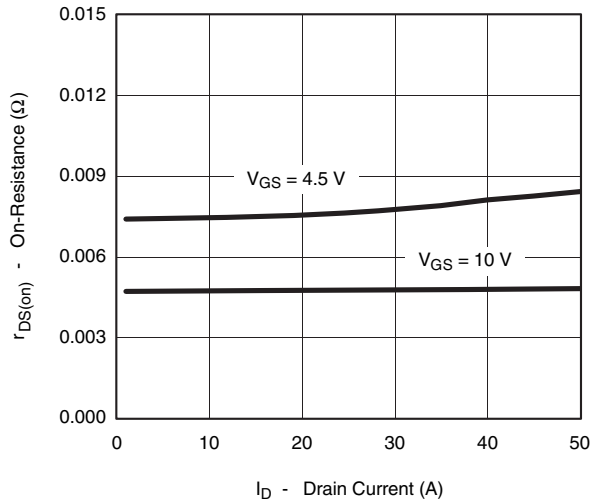
a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

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

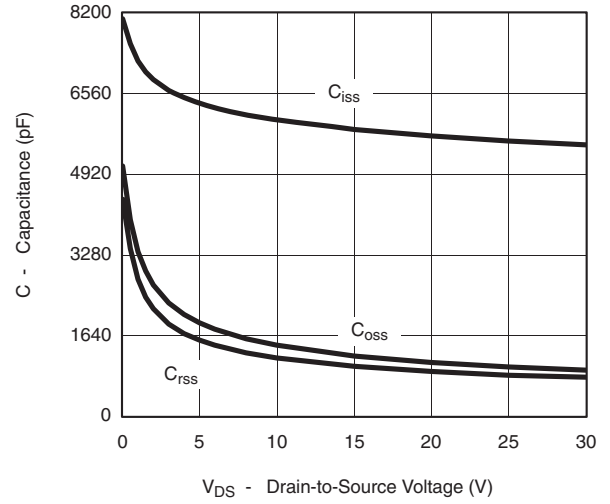
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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

TYPICAL CHARACTERISTICS $25\text{ }^\circ\text{C}$, unless noted

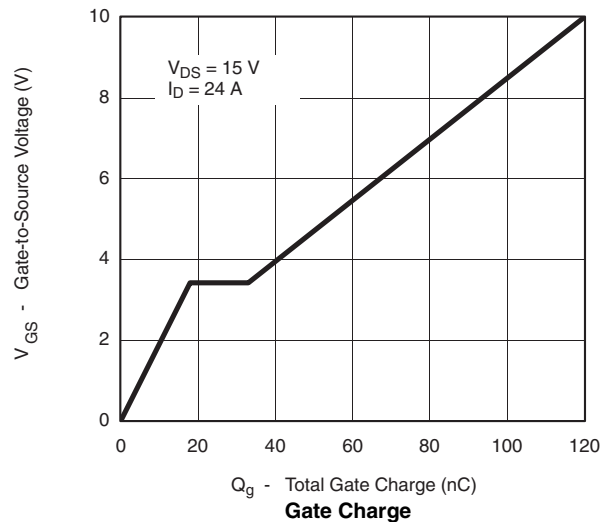
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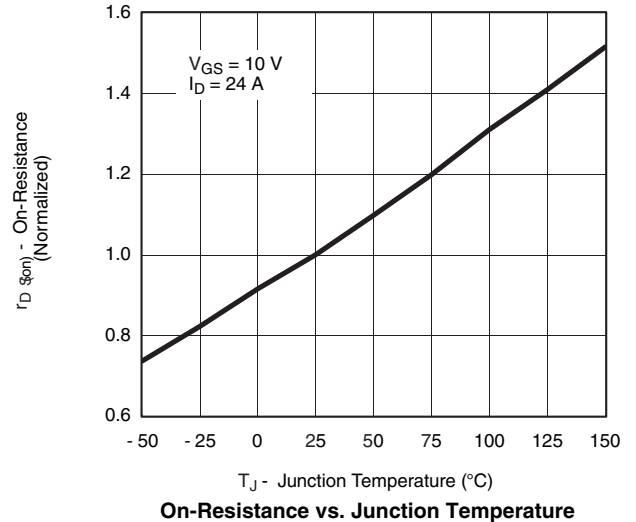
On-Resistance vs. Drain Current



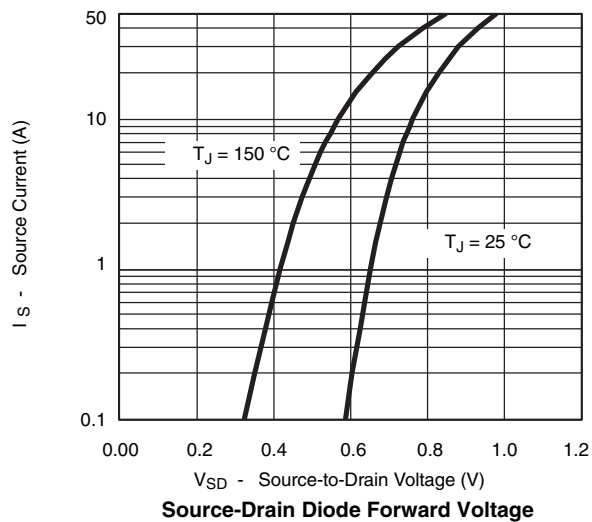
Capacitance



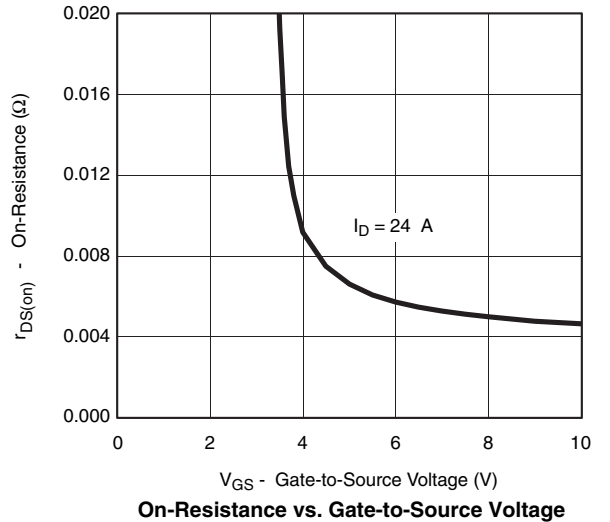
Gate Charge



On-Resistance vs. Junction Temperature

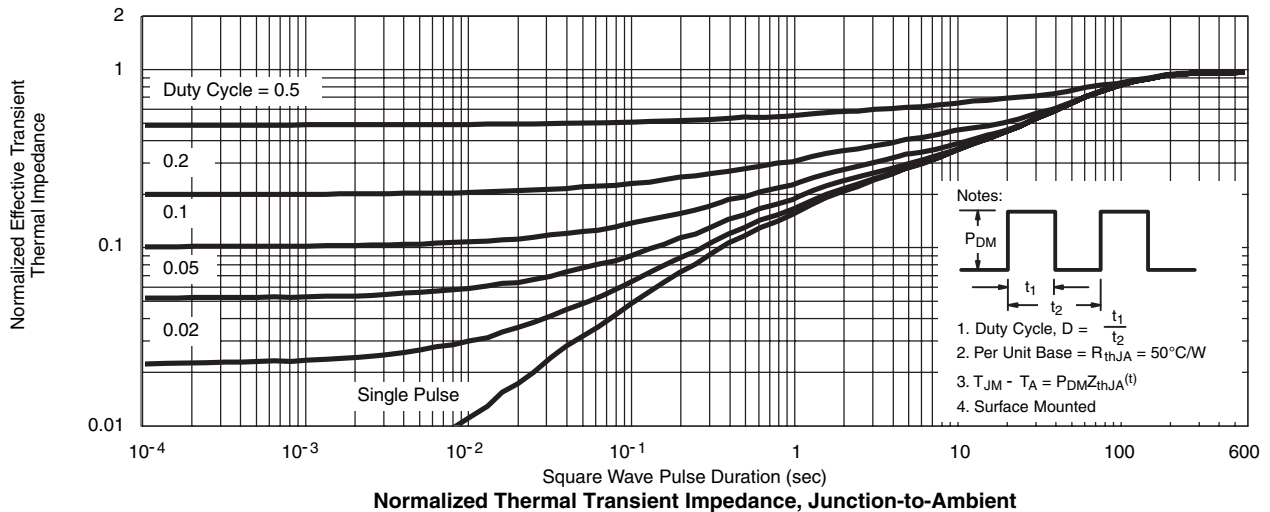
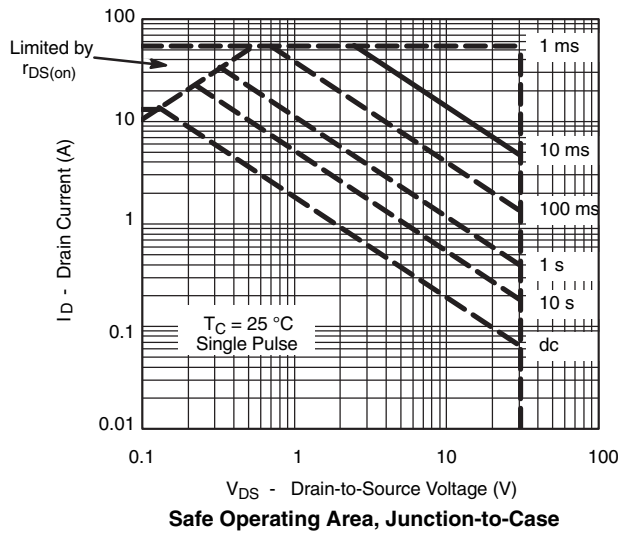
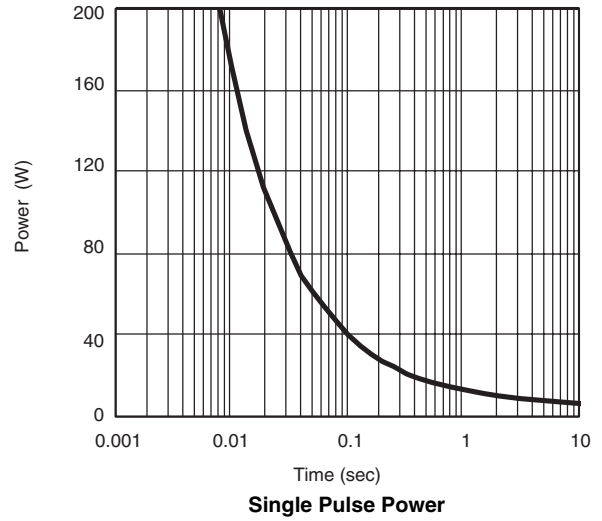
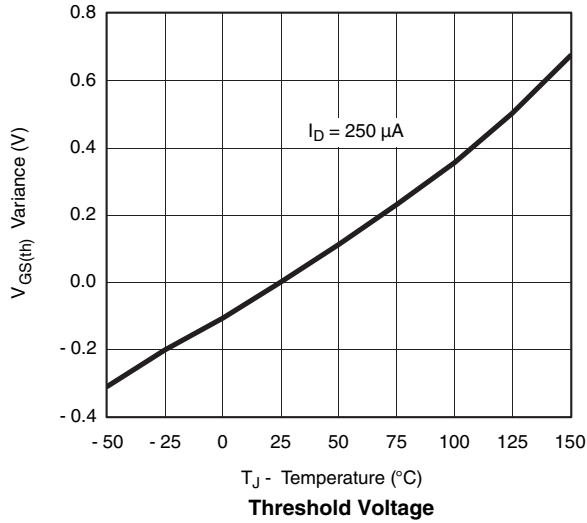


Source-Drain Diode Forward Voltage

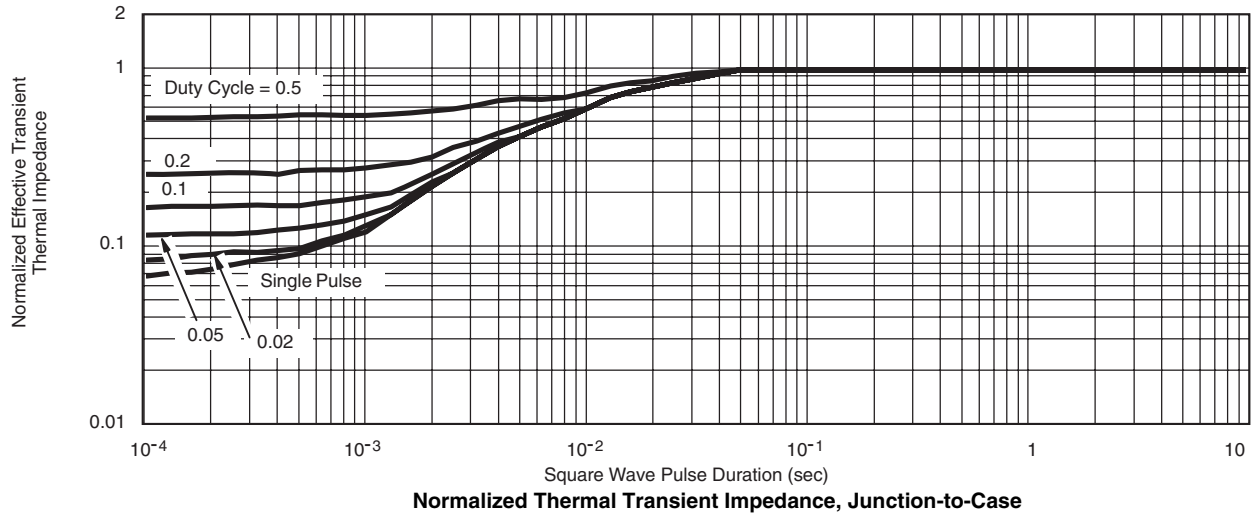


On-Resistance vs. Gate-to-Source Voltage

TYPICAL CHARACTERISTICS 25 °C, unless noted



TYPICAL CHARACTERISTICS 25 °C, unless noted



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