



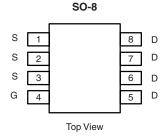
P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY				
V _{DS} (V)	$R_{DS(on)}(\Omega)$	I _D (A)		
	0.0105 at V _{GS} = - 10 V	- 12.6		
- 30	0.0125 at V _{GS} = - 4.5 V	- 11.5		
	0.0195 at V _{GS} = - 2.5 V	- 9.2		

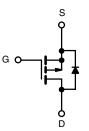
FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFETs
- Compliant to RoHS Directive 2002/95/EC





Ordering Information: Si4427BDY-T1-E3 (Lead (Pb)-free) Si4427BDY-T1-GE3 (Lead (Pb)-free and Halogen-free)



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted						
Parameter		Symbol	10 s	Steady State	Unit	
Drain-Source Voltage		V _{DS}	- 30		V	
Gate-Source Voltage		V _{GS}	± 12			
Continuous Drain Correct /T 150 °C)	T _A = 25 °C	- I _D	- 12.6	- 9.7		
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 70 °C		- 10.1	- 7.7		
Pulsed Drain Current		I _{DM}	- 50		A	
Continuous Source Current (Diode Conduction) ^a		I _S	- 2.5	- 1.3		
Mariana Barra Biraina a	T _A = 25 °C	P _D	2.5	1.5	W	
Maximum Power Dissipation ^a	T _A = 70 °C] ' D	1.6	0.9	, vv	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150		°C	

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Marrian Instantantan Ameliand	t ≤ 10 s	R _{thJA}	40	50	
Maximum Junction-to-Ambient ^a	Steady State	' ¹thJA	70	85	°C/W
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	15	18	

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

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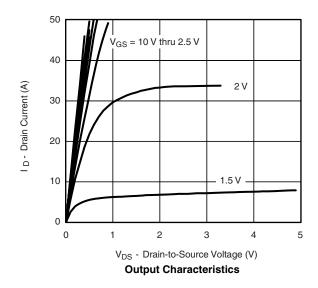
SPECIFICATIONS T _J = 25 °C, unless otherwise noted							
Parameter	Symbol	Test Conditions Min.		Тур.	Max.	Unit	
Static							
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = -250 \mu\text{A}$ - 0.60			- 1.4	V	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V		± 100	nA		
Zero Gate Voltage Drain Current	lana	$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}$			- 1	μΑ	
	I _{DSS}	V _{DS} = - 30 V, V _{GS} = 0 V, T _J = 55 °C			- 5		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \le -5 \text{ V}, V_{GS} = -10 \text{ V}$	- 50			Α	
		V _{GS} = - 10 V, I _D = - 12.6 A		0.0088	0.0105		
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = -4.5 \text{ V}, I_D = -11.5 \text{ A}$		0.0105	0.0125	Ω	
		$V_{GS} = -2.5 \text{ V}, I_D = -5.1 \text{ A}$		0.0150	0.0195		
Forward Transconductance ^a	9 _{fs}	V _{DS} = - 15 V, I _D = - 12.6 A		44		S	
Diode Forward Voltage ^a	V_{SD}	$I_S = -2.5 \text{ A}, V_{GS} = 0 \text{ V}$		- 0.8	- 1.2	٧	
Dynamic ^b							
Total Gate Charge	Qg			47.2	70		
Gate-Source Charge	Q_{gs}	$V_{DS} = -15 \text{ V}, V_{GS} = -4.5 \text{ V}, I_{D} = -12.6 \text{ A}$ 9.8		9.5		nC	
Gate-Drain Charge	Q_{gd}			16.6			
Turn-On Delay Time	t _{d(on)}			12	20		
Rise Time	t _r	V_{DD} = - 15 V, R_L = 15 Ω		15	25		
Turn-Off Delay Time	t _{d(off)}	$I_D \cong$ - 1 A, V_{GEN} = - 10 V, R_g = 6 Ω		242	360	ns	
Fall Time	t _f			110	165		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = - 2.5 A, dl/dt = 100 A/μs		70	110		

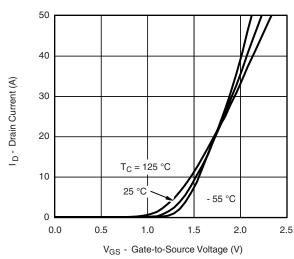
Notes:

- a. Pulse test; pulse width \leq 300 μ 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





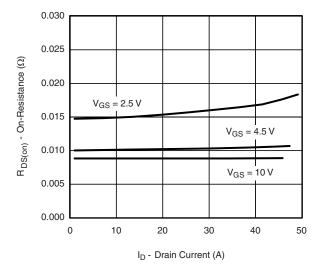
Transfer Characteristics



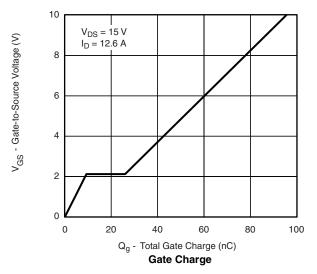


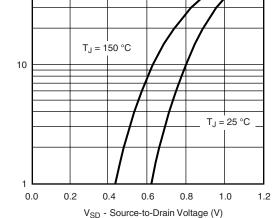


TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

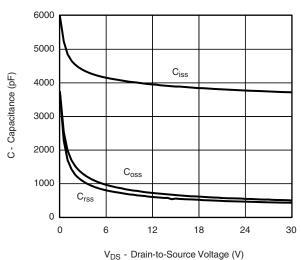


On-Resistance vs. Drain Current

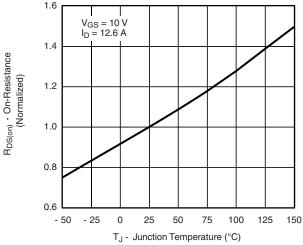




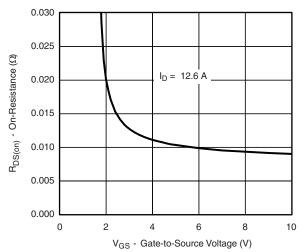
Source-Drain Diode Forward Voltage







On-Resistance vs. Junction Temperature



On-Resistance vs. Gate-to-Source Voltage

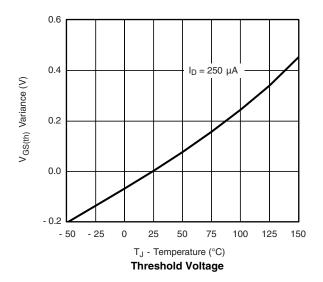
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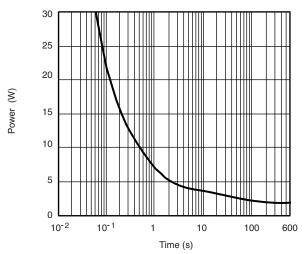
I_S - Source Current (A)

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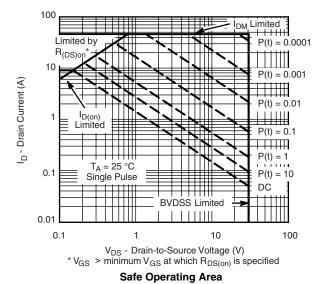
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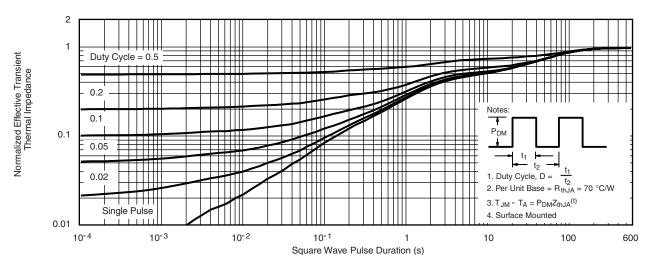
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





Single Pulse Power, Junction-to-Ambient

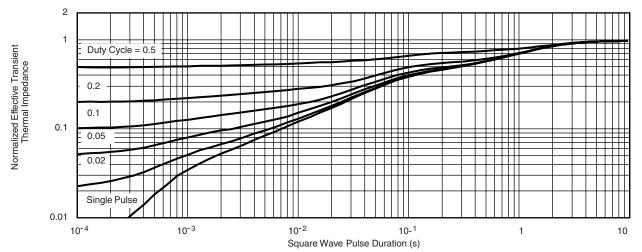




Normalized Thermal Transient Impedance, Junction-to-Ambient



TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Foot

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SOIC (NARROW): 8-LEAD JEDEC Part Number: MS-012







	MILLIM	IETERS	INC	HES	
DIM	Min	Max	Min	Max	
Α	1.35	1.75	0.053	0.069	
A ₁	0.10	0.20	0.004	0.008	
В	0.35	0.51	0.014	0.020	
С	0.19	0.25	0.0075	0.010	
D	4.80	5.00	0.189	0.196	
Е	3.80	4.00	0.150	0.157	
е	1.27	BSC	0.050 BSC		
Н	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

Document Number: 71192 www.vishay.com 11-Sep-06



RECOMMENDED MINIMUM PADS FOR SO-8



Recommended Minimum Pads Dimensions in Inches/(mm)

Return to Index

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