



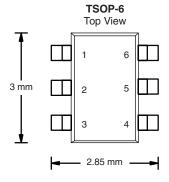
N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY				
V _{DS} (V)	$R_{DS(on)}\left(\Omega\right)$	I _D (A)		
30	0.060 at V _{GS} = 10 V	4.5		
	0.085 at V _{GS} = 4.5 V	3.8		

FEATURES

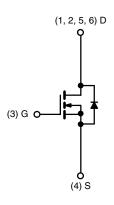
- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFET
- 100 % R_g Tested
- Compliant to RoHS Directive 2002/95/EC





Ordering Information: Si3454ADV-T1-E3 (Lead (Pb)-free)
Si3454ADV-T1-GE3 (Lead (Pb)-free and Halogen-free)

Marking Code:



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted					
Parameter		Symbol	5 s	Steady State	Unit
Drain-Source Voltage		V _{DS}	30		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Brain Comment /T 450 00\8	T _A = 25 °C	- I _D	4.5	3.4	
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 70 °C		3.6	2.7	
Pulsed Drain Current (10 µs Pulse Width)		I _{DM}	20		Α
Continuous Source Current (Diode Conduction) ^a		I _S	1.7	1.0	
M	T _A = 25 °C	- P _D	2.0	1.14	W
Maximum Power Dissipation ^a	T _A = 70 °C		1.3	0.73	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150		°C

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Maniana Institut to Analisa 18	t ≤ 5 s	R _{thJA}	50	62.5	°C/W	
Maximum Junction-to-Ambient ^a	Steady State		90	110		
Maximum Junction-to-Foot (Drain)	Steady State		30	36		

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

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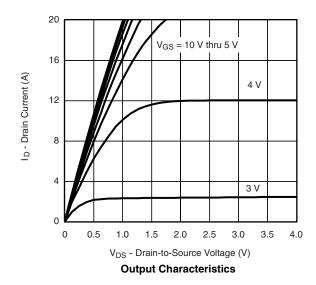
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Static			<u>'</u>			
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	1.0		3.0	V
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zava Cata Valtaga Dvain Cuvvant	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μΑ
Zero Gate Voltage Drain Current		$V_{DS} = 30 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70 ^{\circ}\text{C}$	0 V, V _{GS} = 0 V, T _J = 70 °C		25	
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	15			Α
Drain-Source On-State Resistance ^a	Б	$V_{GS} = 10 \text{ V}, I_D = 4.5 \text{ A}$		0.048	0.060	
	R _{DS(on)}	$V_{GS} = 4.5 \text{ V}, I_D = 3.8 \text{ A}$		0.070	0.085	Ω
Forward Transconductance ^a	9 _{fs}	$V_{DS} = 10 \text{ V}, I_D = 4.5 \text{ A}$		10		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			9	15	nC
Gate-Source Charge	Q_{gs}	$V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}, I_{D} = 4.5 \text{ A}$		2.5		
Gate-Drain Charge	Q _{gd}			1.5		
Gate Resistance	R_{g}		0.5		2.9	Ω
Turn-On Delay Time	t _{d(on)}			10	20	
Rise Time	t _r	V_{DD} = 15 V, R_L = 15 Ω		10	20	·
Turn-Off Delay Time	t _{d(off)}	$\text{I}_\text{D}\cong\text{1 A, V}_\text{GEN}=\text{10 V, R}_\text{g}=\text{6}~\Omega$		20	35	ns
Fall Time	t _f			7	15	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, dI/dt = 100 A/μs		40	80	•

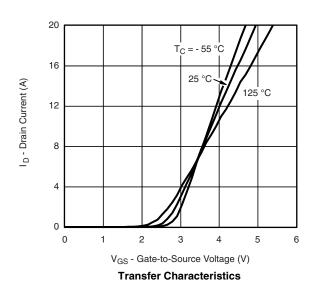
Notes:

- 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



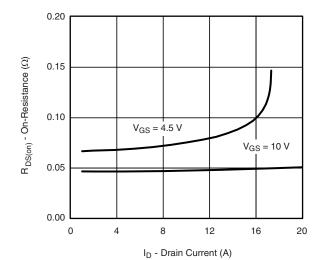




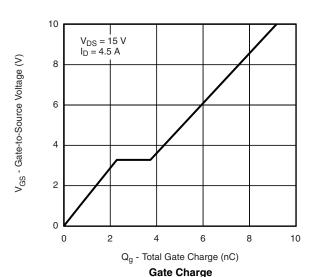




TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



On-Resistance vs. Drain Current



T_J = 150 °C

T_J = 150 °C

T_J = 25 °C

T_J = 25 °C

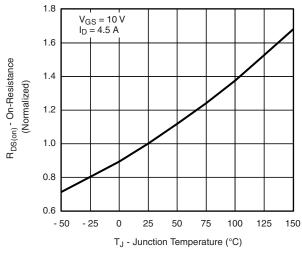
T_J = 25 °C

Source-Drain Diode Forward Voltage

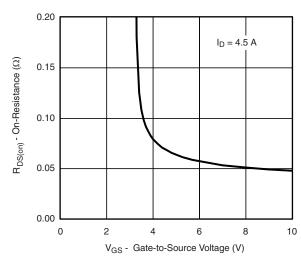
600 500 C_{iss} C - Capacitance (pF) 400 300 200 $\mathsf{C}_{\mathsf{oss}}$ 100 $\mathsf{C}_{\mathsf{rss}}$ 0 6 12 18 24 30

V_{DS} - Drain-to-Source Voltage (V)





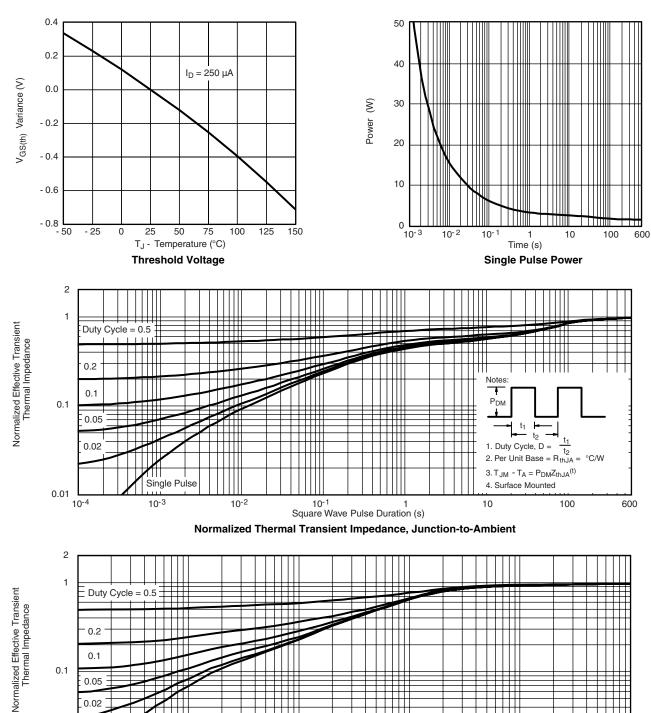
On-Resistance vs. Junction Temperature



On-Resistance vs. Gate-to-Source Voltage

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TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Square Wave Pulse Duration (s) Normalized Thermal Transient Impedance, Junction-to-Foot

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0.1

0.01

0.05

Single Pulse

10-3



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