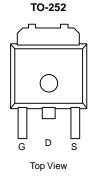


N-Channel 40-V (D-S) MOSFET

PRODUCT SUMMARY						
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A) ^{a, e}	Q _g (Typ)			
40	0.013 at $V_{GS} = 10 \text{ V}$	55	42 nC			
40	0.018 at $V_{GS} = 4.5 \text{ V}$	45	42 110			



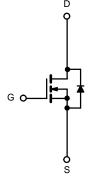
FEATURES

- TrenchFET® Power MOSFET
- 100 % R_g and UIS Tested
 Compliant to RoHS Directive 2011/65/EU



APPLICATIONS

- OR-ing
- Server
- DC/DC



N-Channel MOSFET

Parameter		Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	40	V		
Gate-Source Voltage	V _{GS}	± 20	¬		
	T _C = 25 °C		55 ^{a, e}		
Continuous Drain Current (T _{.I} = 175 °C)	T _C = 70 °C		45 ^e		
Continuous Diam Current (1 j = 173 °C)	T _A = 25 °C	I _D	15.8 ^{b, c}	A	
	T _A = 70 °C		12 ^{b, c}	^	
Pulsed Drain Current	I _{DM}	200			
Avalanche Current Pulse	L = 0.1 mH		39		
Single Pulse Avalanche Energy	L = 0.111111	E _{AS}	94.8	mJ	
Continuous Source-Drain Diode Current	T _C = 25 °C	I _S	90 ^{a, e}	A	
Continuous Source-Diam Diode Current	T _A = 25 °C	'S	3.13 ^{b, c}	^	
	T _C = 25 °C		100 ^a		
Manianum Danian Disain ation	T _C = 70 °C	ь	75	10/	
Maximum Power Dissipation	T _A = 25 °C	P _D	3.75 ^{b, c}	W	
	T _A = 70 °C		2.63 ^{b, c}		
Operating Junction and Storage Temperature R	T _J , T _{stg}	- 55 to 175	°C		

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Тур.	Max.	Unit	
Maximum Junction-to-Ambient ^{b, d}	t ≤ 10 sec	R _{thJA}	32	40	°C/W	
Maximum Junction-to-Case	Steady State	R _{thJC}	0.5	0.6	C/VV	

Notes:

- a. Based on T_C = 25 °C. b. Surface mounted on 1" x 1" FR4 board.

- b. Striate informed on 1 X 1 114 board.
 c. t = 10 sec.
 d. Maximum under steady state conditions is 90 °C/W.
 e. Calculated based on maximum junction temperature. Package limitation current is 90 A.



Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$ 40				V
V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$	J 250 \		35		
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_J$	$I_{D} = 250 \mu A$		- 7.5		mV/°C
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$ 1.5			2.5	V
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zana Oata Waltana Basis Oursest		V _{DS} = 40 V, V _{GS} = 0 V			1	
Zero Gate Voltage Drain Current	IDSS	$V_{DS} = 40 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			10	μA
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	90			Α
		$V_{GS} = 10 \text{ V}, I_D = 38.8 \text{ A}$		0.012		Ω
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = 4.5 \text{ V}, I_D = 37 \text{ A}$		0.014		
Forward Transconductance ^a	9 _{fs}	$V_{DS} = 15 \text{ V}, I_{D} = 38.8 \text{ A}$		160		S
Dynamic ^b						
Input Capacitance	C _{iss}			1801		pF
Output Capacitance	C _{oss}	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$		725		
Reverse Transfer Capacitance	C _{rss}			570		
Tatal Oata Ohanna	0	$V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 38.8 \text{ A}$		85 120	120	nC
Total Gate Charge	Q_g			42	62	
Gate-Source Charge	Q_{gs}	$V_{DS} = 15 \text{ V}, V_{GS} = 4.5 \text{ V}, I_{D} = 28.8 \text{ A}$		17		
Gate-Drain Charge	Q_{gd}			14		
Gate Resistance	R _g	f = 1 MHz		1.4	2.1	Ω
Turn-On Delay Time	t _{d(on)}			10	20	
Rise Time	t _r	V_{DD} = 15 V, R_L = 0.625 Ω		11	17	
Turn-Off Delay Time	t _{d(off)}	$I_D\cong 24$ A, $V_{GEN}=10$ V, $R_g=1$ Ω		35	55	
Fall Time	t _f			10	15	
Turn-On Delay Time	t _{d(on)}			25	43	ns -
Rise Time	t _r	V_{DD} = 15 V, R_L = 0.67 Ω		80	150	
Turn-Off Delay Time	t _{d(off)}	$I_D\cong 22.5$ A, V_{GEN} = 4.5 V, R_g = 1 Ω		26	42	
Fall Time	t _f			12	18	
Drain-Source Body Diode Characteristic	cs					
Continuous Source-Drain Diode Current	I _S	$T_C = 25 ^{\circ}C$			120	А
Pulse Diode Forward Current ^a	I _{SM}				120	
Body Diode Voltage	V_{SD}	I _S = 22 A		0.8	1.2	V
Body Diode Reverse Recovery Time	t _{rr}			52	78	ns
Body Diode Reverse Recovery Charge	Q _{rr}			70.2	105	nC
Reverse Recovery Fall Time	t _a			27		
Reverse Recovery Rise Time	t _h			25		ns

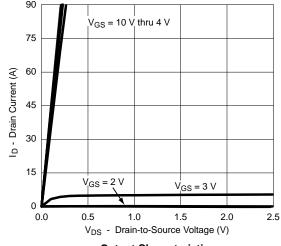
Notes:

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

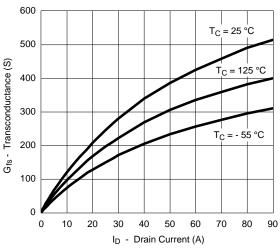
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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



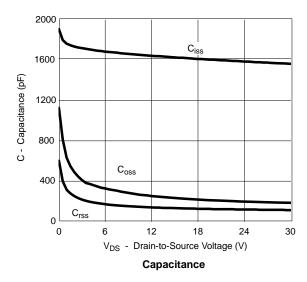
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

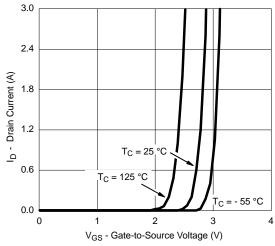


Output Characteristics

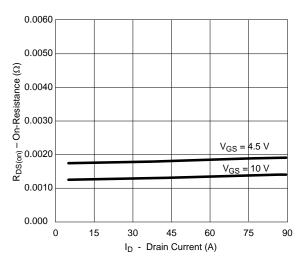


Transconductance

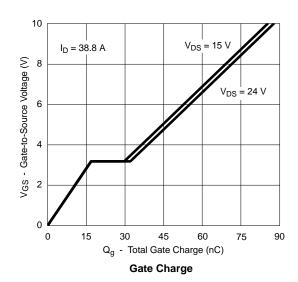




Transfer Characteristics

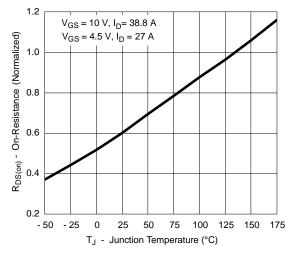


R_{DS(on)} vs. Drain Current

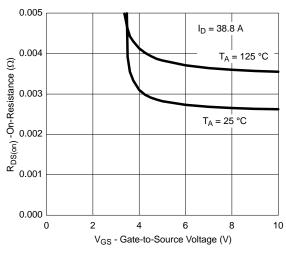




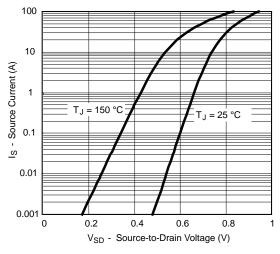
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



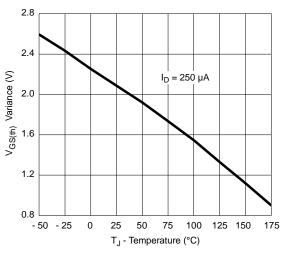
On-Resistance vs. Junction Temperature



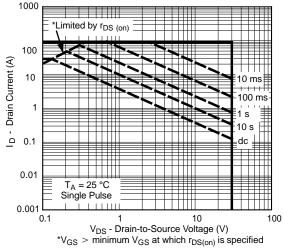
 $R_{DS(on)}\, vs.\, V_{GS}\, vs.\, Temperature$



Forward Diode Voltage vs. Temperature



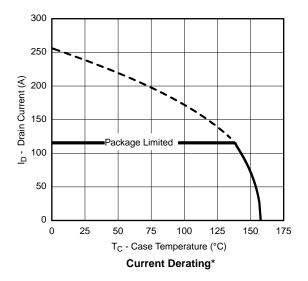
Threshold Voltage

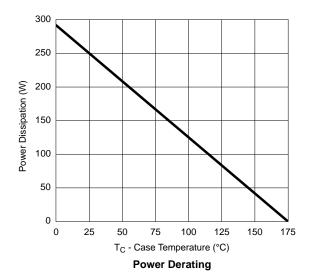


Safe Operating Area, Junction-to-Ambient



TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)





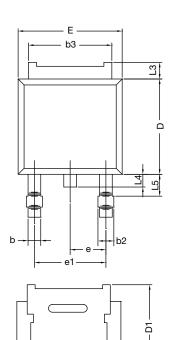
*The power dissipation P_D is based on $T_{J(max)}$ = 175 °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.



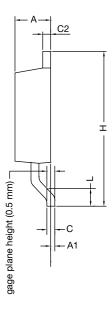
Normalized Thermal Transient Impedance, Junction-to-Case



TO-252AA CASE OUTLINE



E1



	MILLIMETERS		INC	HES		
DIM.	MIN.	MAX.	MIN.	MAX.		
А	2.18	2.38	0.086	0.094		
A1	-	0.127	-	0.005		
b	0.64	0.88	0.025	0.035		
b2	0.76	1.14	0.030	0.045		
b3	4.95	5.46	0.195	0.215		
С	0.46	0.61	0.018	0.024		
C2	0.46	0.89	0.018	0.035		
D	5.97	6.22	0.235	0.245		
D1	5.21	-	0.205	-		
Е	6.35	6.73	0.250	0.265		
E1	4.32	-	0.170	-		
Н	9.40	10.41	0.370	0.410		
е	2.28	3 BSC 0.090 BS		BSC		
e1	4.56 BSC		0.180 BSC			
L	1.40	1.78	0.055	0.070		
L3	0.89	1.27	0.035	0.050		
L4	-	1.02	-	0.040		
L5	1.14	1.52	0.045	0.060		
ECN: X12-0247-Rev. M. 24-Dec-12						

DWG: 5347 Note

• Dimension L3 is for reference only.

服务热线:400-655-8788



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