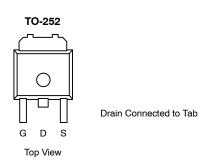


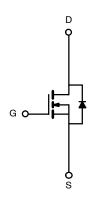
N-Channel 20-V (D-S)175 $^{\circ}$ C MOSFET

PRODUCT SUMMARY					
V _{DS} (V)	$r_{DS(on)}\left(\Omega\right)$	I _D (A) ^a			
20	0.0045 @ V _{GS} = 4.5 V	100			
	0.006 @ V _{GS} = 2.5 V	90			

FEATURES

- TrenchFET® Power MOSFET
- 175°C Maximum Junction Temperature
- 100% R_g Tested





N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}$ C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Limit	Unit			
Drain-Source Voltage	V _{DS}	20	.,			
Gate-Source Voltage	V _{GS}	±15	- v			
Continuous Punis Comments	T _C = 25°C		100			
Continuous Drain Current ^a	T _C = 100°C	l _D	80			
Pulsed Drain Current		I _{DM}	200	Α		
Continuous Source Current (Diode Conduction) ^a	Is	65				
Mandanian Danian Disabatian	T _C = 25°C		71	w		
Maximum Power Dissipation	T _A = 25°C	- P _D	8.3 ^{b, c}			
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 175	°C			

THERMAL RESISTANCE RATINGS							
Parameter	Symbol	Typical	Maximum	Unit			
	t ≤ 10 sec.	R_{thJA}	15	18	°C/W		
Maximum Junction-to-Ambient ^b	Steady State		40	50			
Maximum Junction-to-Case		R _{thJC}	1.75	2.1			

Notes

- a. Package Limited
- b. Surface Mounted on 1" x 1" FR4 Board
- $c. \quad t \leq 10 \ \text{sec}$

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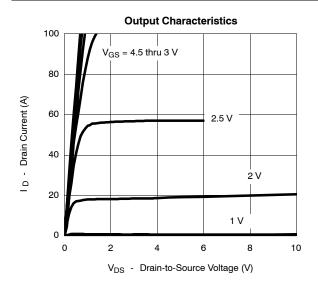
Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static	-		1	ı		
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V_{GS} = 0 V, I_D = 250 μA	20			V
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \mu A$	0.5		1.5	V
Gate-Body Leakage	I _{GSS}	V_{DS} = 0 V, V_{GS} = ± 12 V			±100	nA
		V _{DS} = 20 V, V _{GS} = 0 V			1	
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 125^{\circ}\text{C}$			50	μ Α
On-State Drain Current ^b	I _{D(on)}	$V_{DS} = 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	100			Α
		V_{GS} = 4.5 V, I_D = 20 A		0.0045		
Drain-Source On-State Resistance ^b	r _{DS(on)}	$V_{GS} = 4.5 \text{ V}, I_D = 20 \text{ A}, T_J = 125^{\circ}\text{C}$	_{GS} = 4.5 V, I _D = 20 A, T _J = 125°C			Ω
		$V_{GS} = 2.5 \text{ V}, I_D = 20 \text{ A}$		0.006		
Forward Transconductanceb	9 _{fs}	$V_{DS} = 5 \text{ V}, I_{D} = 40 \text{ A}$	20			S
Dynamic ^a						
Input Capacitance	C _{iss}			3660		pF
Output Capacitance	C _{oss}	$V_{GS} = 0 \text{ V}, V_{DS} = 20 \text{ V}, f = 1 \text{ MHz}$		730		
Reverse Transfer Capacitance	C _{rss}			375		
Total Gate Charge ^c	Qg			26	35	nC
Gate-Source Charge ^c	Q _{gs}	V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 40 A		5		
Gate-Drain Charge ^c	Q _{gd}			7		
Gate Resistance	R _g		1		3.7	Ω
Turn-On Delay Time ^c	t _{d(on)}			20	35	
Rise Time ^c	t _r	$V_{DD} = 10 \text{ V, R}_{I} = 0.25 \Omega$		120	190	1
Turn-Off Delay Time ^c	t _{d(off)}	$\begin{array}{c} V_{DD} = 10 \text{ V}, R_L = 0.25 \; \Omega \\ I_D \cong \; 40 \; A, V_{GEN} = 4.5 \; V, R_G = 2.5 \; \Omega \end{array}$		45	70	ns _
Fall Time ^c	t _f			20	35	
Source-Drain Diode Ratings ar	d Characteristi	c (T _C = 25°C)				
Pulsed Current	I _{SM}				100	А
Diode Forward Voltage ^b	V _{SD}	I _F = 100 A, V _{GS} = 0 V		1.2	1.5	V
0 D : D D F	Orain Reverse Recovery Time t_{rr} $I_F = 40 \text{ A, di/dt} = 100 \text{ A/}\mu\text{s}$			35	70	ns

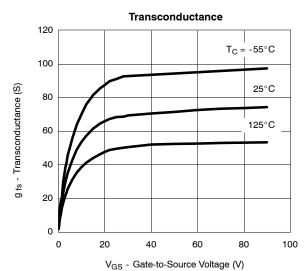
- Notes a. Guaranteed by design, not subject to production testing. b. Pulse test; pulse width $\leq 300~\mu s$, duty cycle $\leq 2\%$. c. Independent of operating temperature.

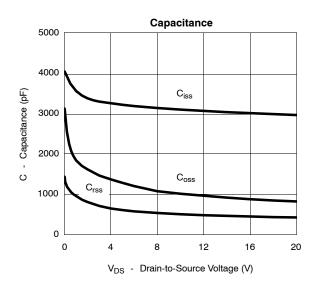
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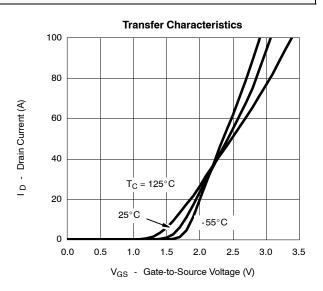


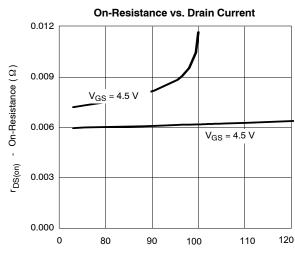
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

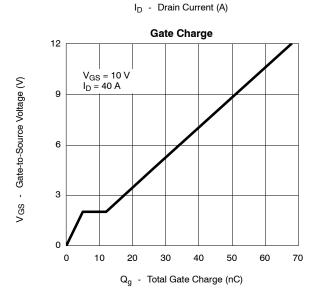






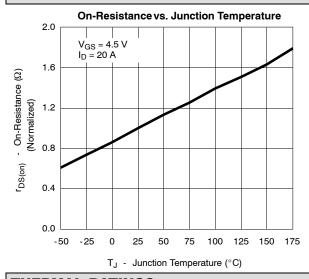


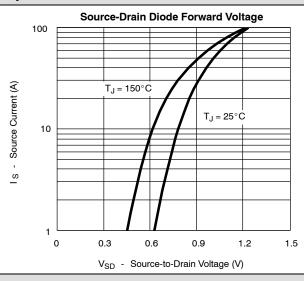




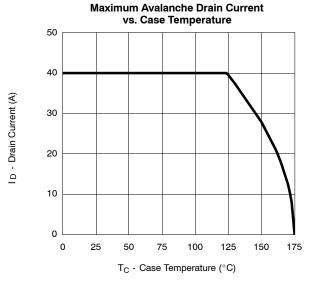


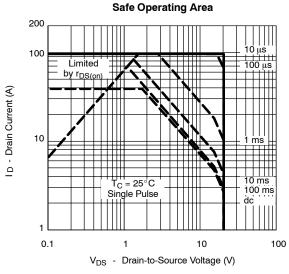
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

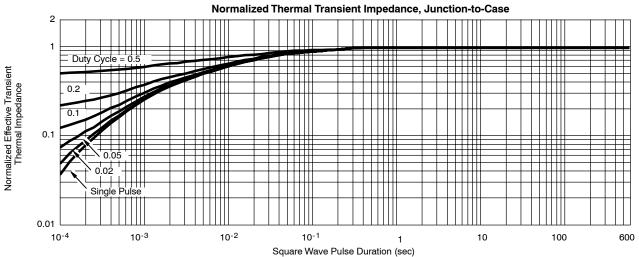




THERMAL RATINGS



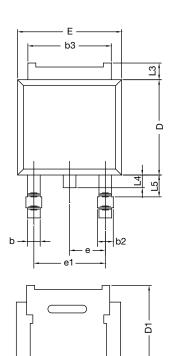


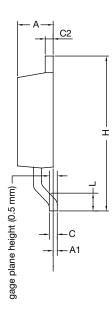


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TO-252AA CASE OUTLINE





	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	1	0.170	-		
Н	9.40	10.41	0.370	0.410		
е	2.28	BSC	0.090 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.

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