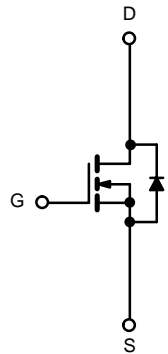
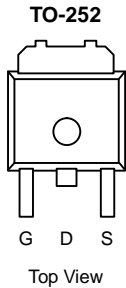


## N-Channel 40-V (D-S) MOSFET

PRODUCT SUMMARY			
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A) <sup>a, e</sup>	Q <sub>g</sub> (Typ)
40	0.0022 at V <sub>GS</sub> = 10 V	125	78 nC
	0.0033 at V <sub>GS</sub> = 4.5 V	105	



N-Channel MOSFET

### FEATURES

- TrenchFET<sup>®</sup> Power MOSFET
- 100 % R<sub>g</sub> and UIS Tested
- Compliant to RoHS Directive 2011/65/EU



### APPLICATIONS

- OR-ing
- Server
- DC/DC

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C, unless otherwise noted)				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V <sub>DS</sub>	40	V	
Gate-Source Voltage	V <sub>GS</sub>	± 20		
Continuous Drain Current (T <sub>J</sub> = 175 °C)	I <sub>D</sub>	T <sub>C</sub> = 25 °C	125 <sup>a, e</sup>	A
		T <sub>C</sub> = 70 °C	110 <sup>e</sup>	
		T <sub>A</sub> = 25 °C	32.8 <sup>b, c</sup>	
		T <sub>A</sub> = 70 °C	29 <sup>b, c</sup>	
Pulsed Drain Current	I <sub>DM</sub>	380		
Avalanche Current Pulse	I <sub>AS</sub>	45	L = 0.1 mH	
Single Pulse Avalanche Energy				
Continuous Source-Drain Diode Current	I <sub>S</sub>	T <sub>C</sub> = 25 °C	120 <sup>a, e</sup>	A
		T <sub>A</sub> = 25 °C	3.93 <sup>b, c</sup>	
Maximum Power Dissipation	P <sub>D</sub>	T <sub>C</sub> = 25 °C	150 <sup>a</sup>	W
		T <sub>C</sub> = 70 °C	125	
		T <sub>A</sub> = 25 °C	3.75 <sup>b, c</sup>	
		T <sub>A</sub> = 70 °C	2.63 <sup>b, c</sup>	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	- 55 to 175	°C	

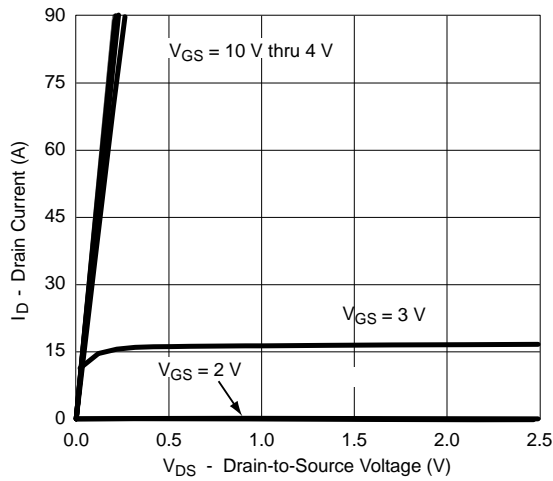
THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typ.	Max.	Unit	
Maximum Junction-to-Ambient <sup>b, d</sup>	R <sub>thJA</sub>	14	20	°C/W	
Maximum Junction-to-Case	R <sub>thJC</sub>	0.5	0.6		

Notes:

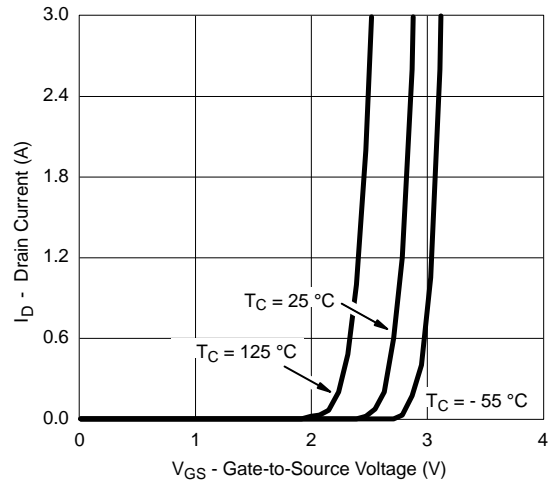
- Based on T<sub>C</sub> = 25 °C.
- Surface mounted on 1" x 1" FR4 board.
- t = 10 sec.
- Maximum under steady state conditions is 90 °C/W.
- Calculated based on maximum junction temperature. Package limitation current is 80 A.



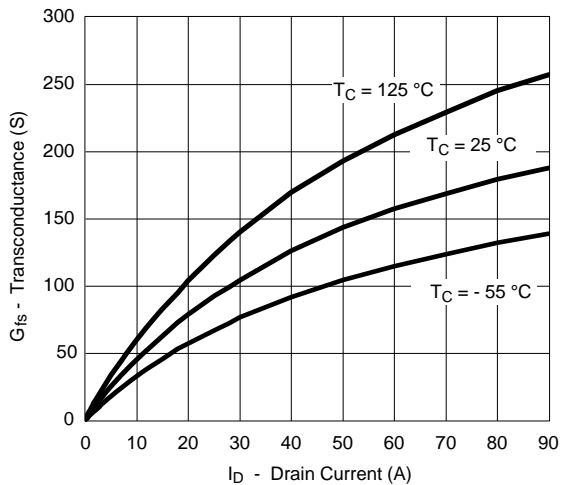
**TYPICAL CHARACTERISTICS** (25 °C, unless otherwise noted)



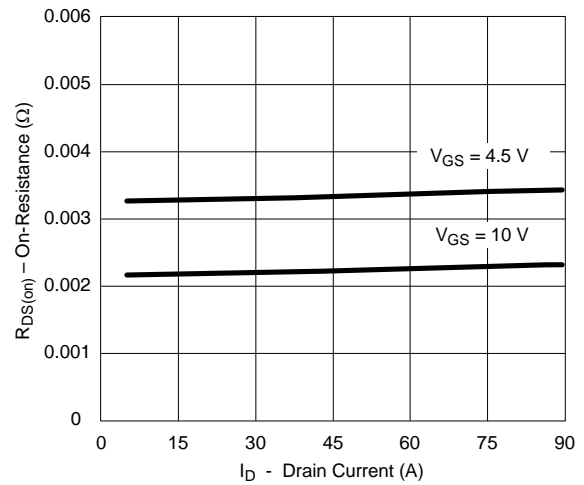
**Output Characteristics**



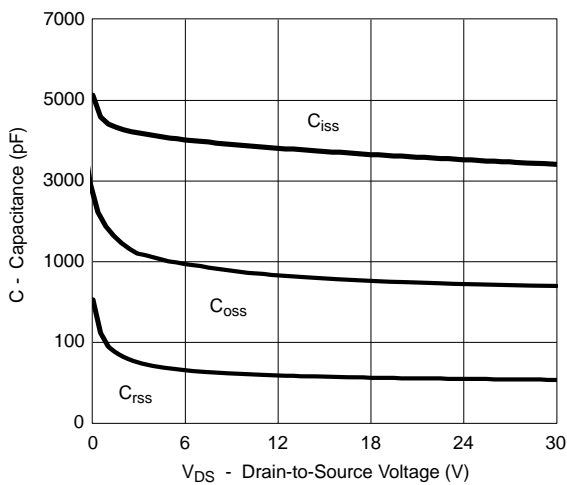
**Transfer Characteristics**



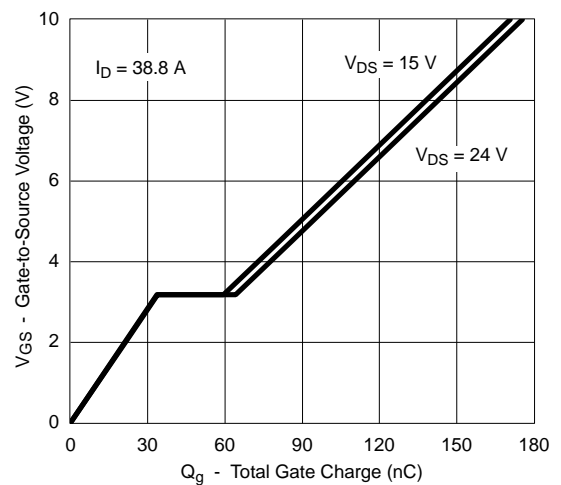
**Transconductance**



**$R_{DS(on)}$  vs. Drain Current**



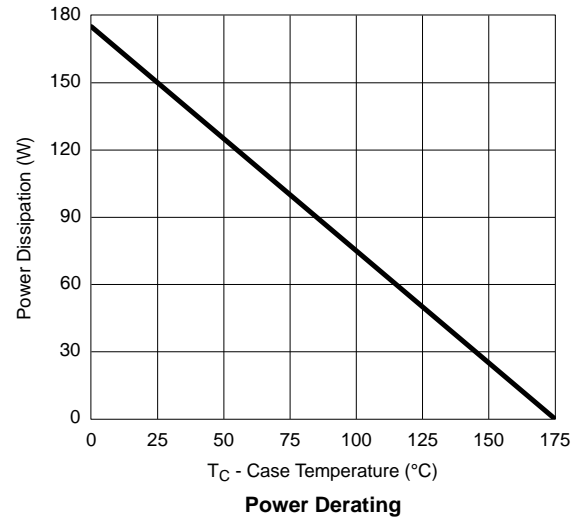
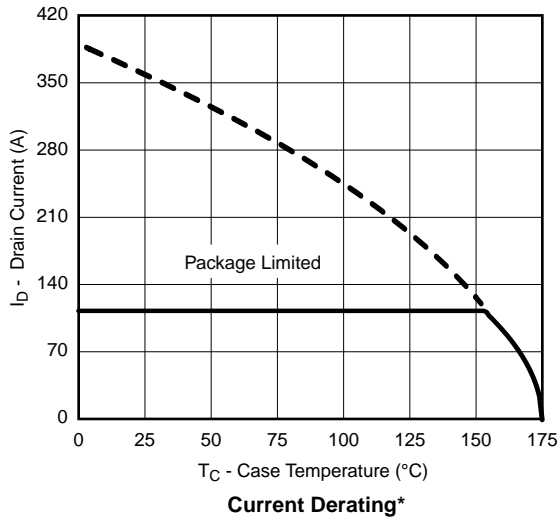
**Capacitance**



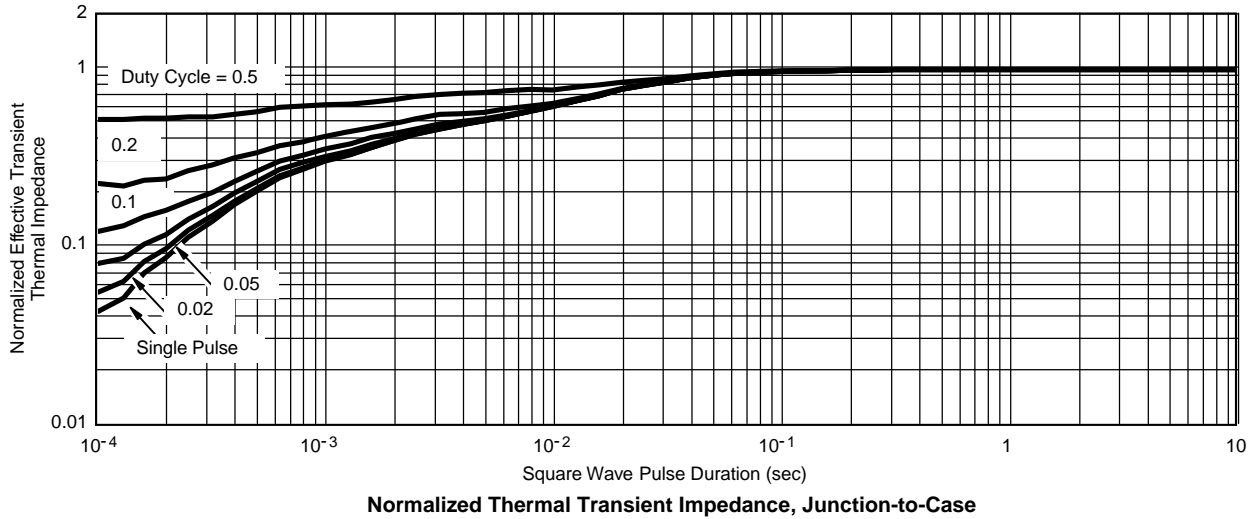
**Gate Charge**



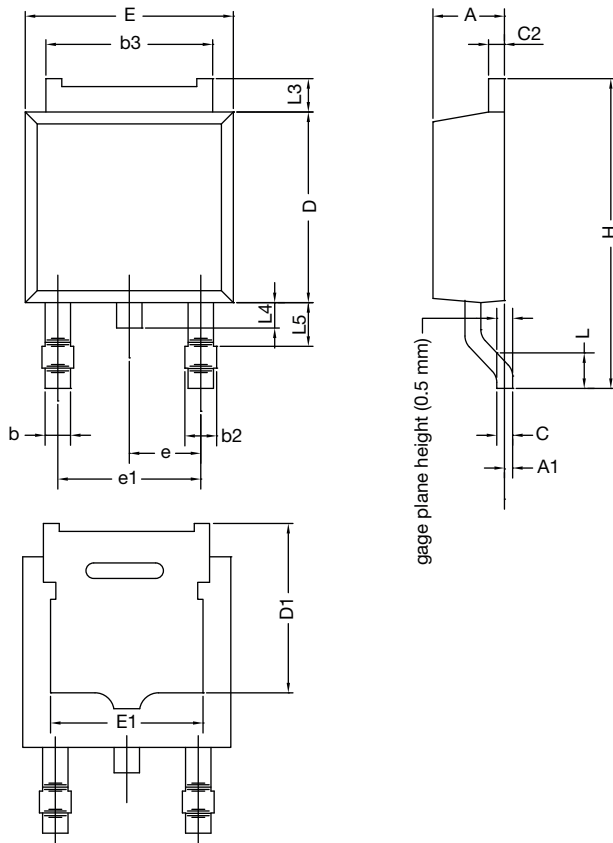
**TYPICAL CHARACTERISTICS** (25 °C, unless otherwise noted)



\*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.



## TO-252AA CASE OUTLINE



DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	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
C	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	-
E	6.35	6.73	0.250	0.265
E1	4.32	-	0.170	-
H	9.40	10.41	0.370	0.410
e	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.

**RECOMMENDED MINIMUM PADS FOR DPAK (TO-252)**



Recommended Minimum Pads  
Dimensions in Inches/(mm)

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