

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	0.0012 at V _{GS} = 10 V	170	125 nC
	0.0016 at V _{GS} = 4.5 V	150	

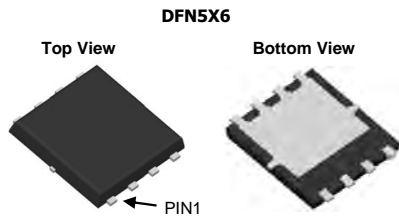
FEATURES

- TrenchFET[®] Power MOSFET
- 100 % R_g and UIS Tested

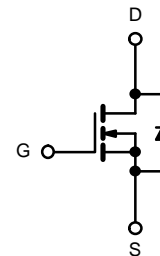
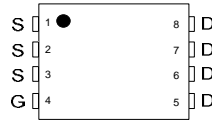


APPLICATIONS

- Notebook PC Core
- VRM/POL



Top View



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	40	V	
Gate-Source Voltage	V _{GS}	± 20		
Continuous Drain Current (T _J = 175 °C)	I _D	T _C = 25 °C	170 ^{a, e}	
		T _C = 70 °C	150 ^e	
		T _A = 25 °C	39 ^{b, c}	
		T _A = 70 °C	28.6 ^{b, c}	
Pulsed Drain Current	I _{DM}	400	A	
Avalanche Current Pulse	L = 0.1 mH	I _{AS}		41
Single Pulse Avalanche Energy	E _{AS}	550		mJ
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C	170 ^{a, e}	
		T _A = 25 °C	5.36 ^{b, c}	
Maximum Power Dissipation	P _D	T _C = 25 °C	120 ^a	
		T _C = 70 °C	105	
		T _A = 25 °C	4.15 ^{b, c}	
		T _A = 70 °C	2.87 ^{b, c}	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to 175	°C	

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^{b, d}	R _{thJA}	14	18	°C/W
Maximum Junction-to-Case	R _{thJC}	0.45	0.7	

Notes:

a. Based on T_C = 25 °C.

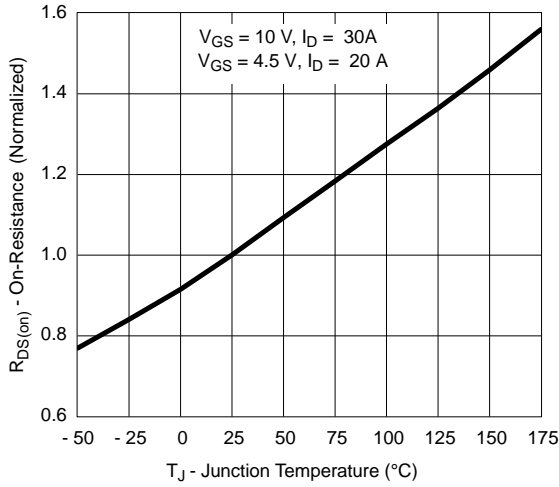
b. Surface mounted on 1" x 1" FR4 board.

c. t = 10 s.

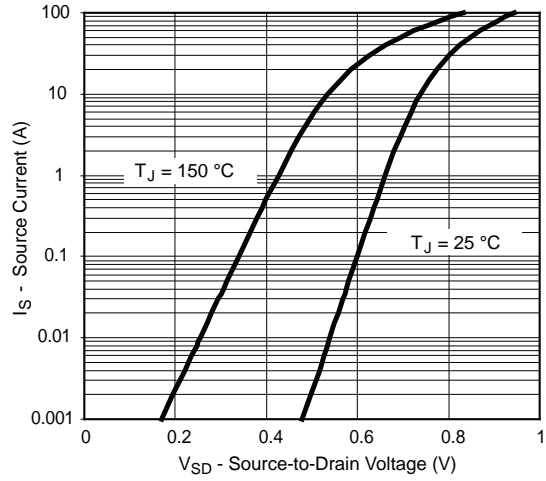
d. Maximum under steady state conditions is 90 °C/W.

e. Calculated based on maximum junction temperature. Package limitation current is 80 A.

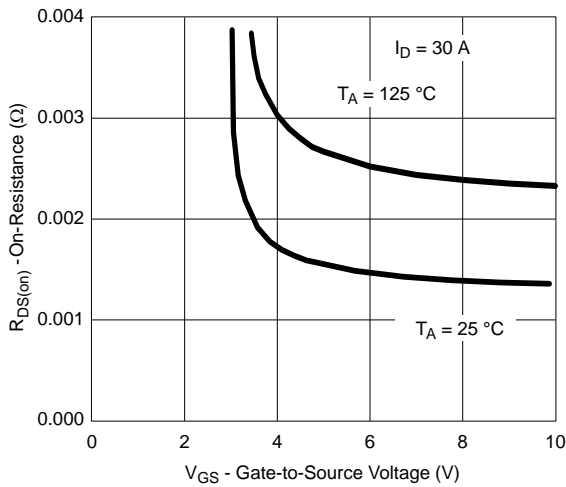
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



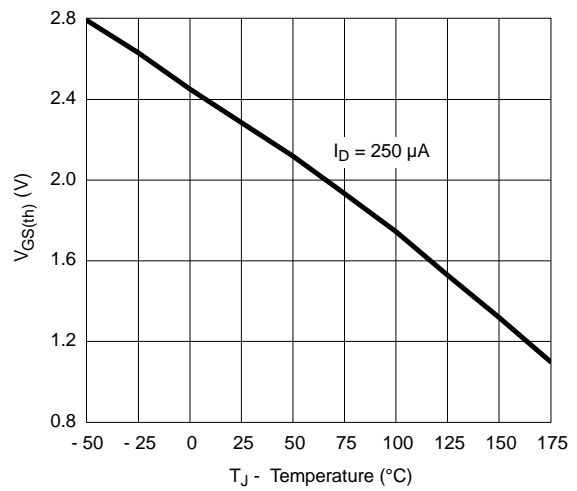
On-Resistance vs. Junction Temperature



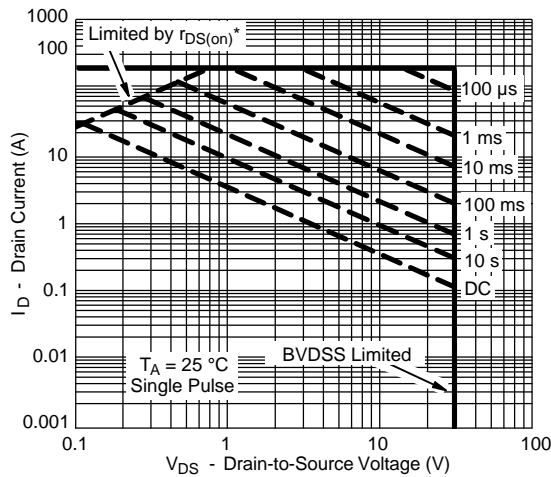
Forward Diode Voltage vs. Temperature



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

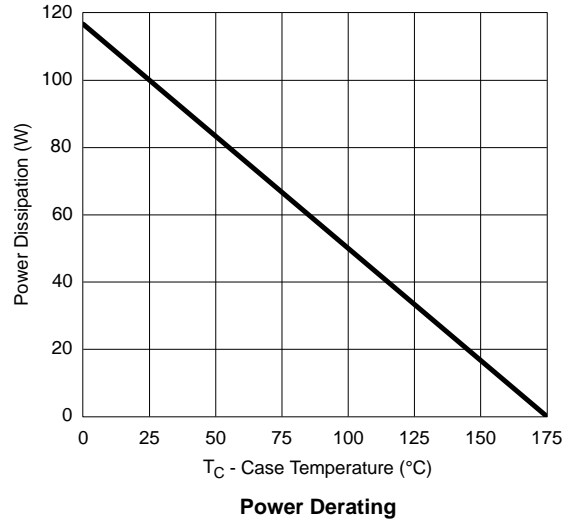
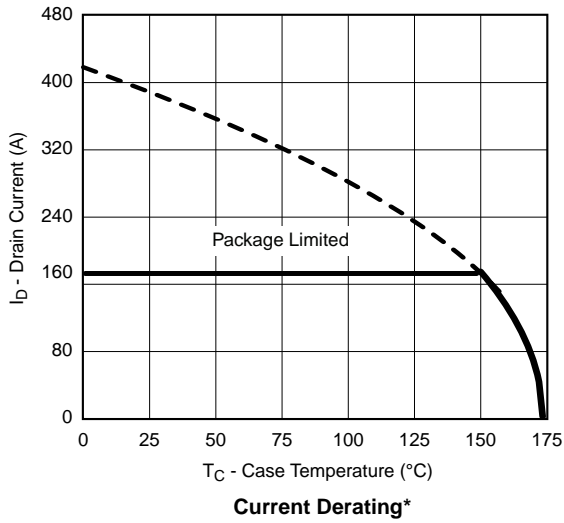


Threshold Voltage

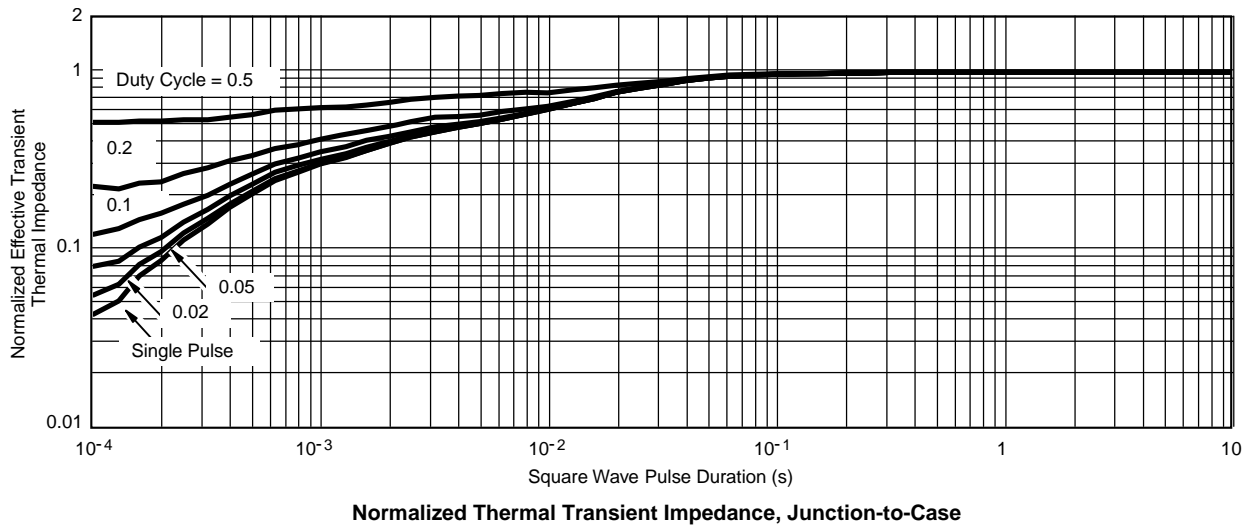


* $V_{GS} >$ minimum V_{GS} at which $r_{DS(on)}$ is specified
Safe Operating Area, Junction-to-Ambient

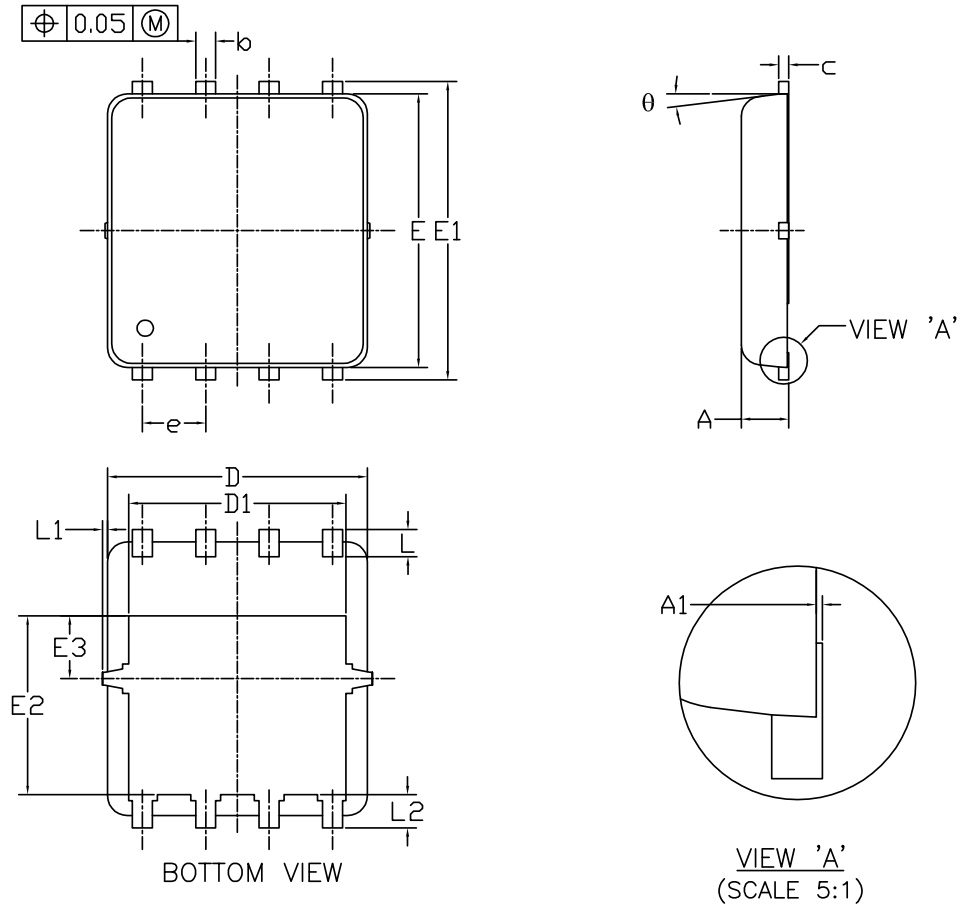
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



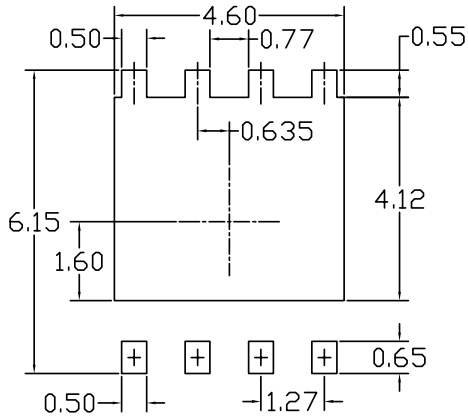
* The power dissipation P_D is based on $T_{J(max)} = 175$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.



DFN5x6_8L_EP1_P PACKAGE OUTLIN



RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0.95	1.00	0.033	0.037	0.039
A1	0.00	---	0.05	0.000	---	0.002
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.15	0.20	0.25	0.006	0.008	0.010
D	5.10	5.20	5.30	0.201	0.205	0.209
D1	4.25	4.35	4.45	0.167	0.171	0.175
E	5.45	5.55	5.65	0.215	0.219	0.222
E1	5.95	6.05	6.15	0.234	0.238	0.242
E2	3.525	3.625	3.725	0.139	0.143	0.147
E3	1.175	1.275	1.375	0.046	0.050	0.054
e	1.27 BSC			0.050 BSC		
L	0.45	0.55	0.65	0.018	0.022	0.026
L1	0	---	0.15	0	---	0.006
L2	0.68 REF			0.027 REF		
θ	0°	---	10°	0°	---	10°

NOTE

UNIT: mm

- PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6 MILS EACH.
- CONTROLLING DIMENSION IS MILLIMETER.
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.

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