

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	0.0082 at $V_{GS} = 10$ V	48	66 nC
	0.012 at $V_{GS} = 4.5$ V	36	

FEATURES

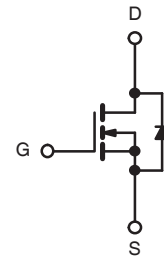
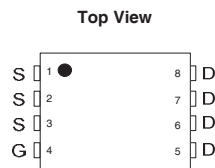
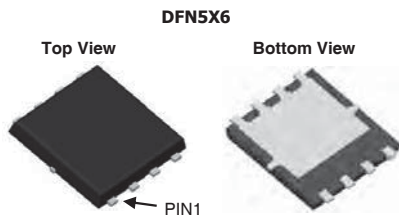
- TrenchFET[®] Power MOSFET
- 100 % R_g and UIS Tested



RoHS
COMPLIANT

APPLICATIONS

- Notebook PC Core
- VRM/POL



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	48 ^{a, e}
		$T_C = 70$ °C	38 ^e
		$T_A = 25$ °C	15 ^{b, c}
		$T_A = 70$ °C	10 ^{b, c}
Pulsed Drain Current	I_{DM}	160	A
Avalanche Current Pulse	I_{AS}	18	
Single Pulse Avalanche Energy	E_{AS}	40	
Continuous Source-Drain Diode Current	I_S	$T_C = 25$ °C	50 ^{a, e}
		$T_A = 25$ °C	2.1 ^{b, c}
Maximum Power Dissipation	P_D	$T_C = 25$ °C	150 ^a
		$T_C = 70$ °C	105
		$T_A = 25$ °C	2.9 ^{b, c}
		$T_A = 70$ °C	1.7 ^{b, c}
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 175	°C

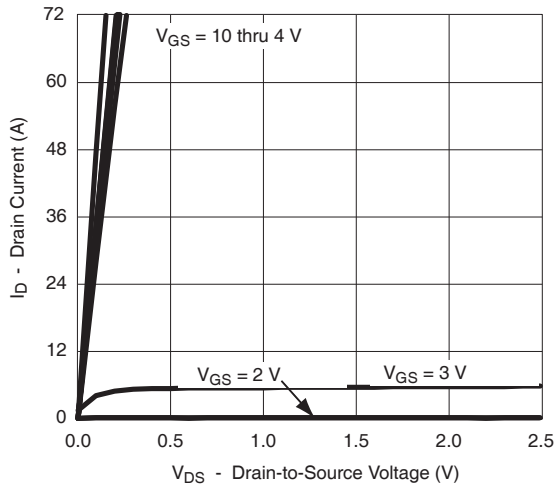
THERMAL RESISTANCE RATINGS

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^{b, d}	R_{thJA}	50	65	°C/W
Maximum Junction-to-Case	R_{thJC}	0.9	1.1	

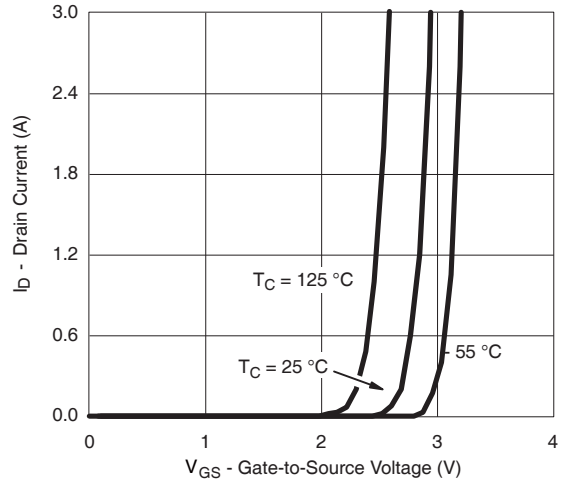
Notes:

- Based on $T_C = 25$ °C.
- Surface mounted on 1" x 1" FR4 board.
- $t = 10$ s.
- Maximum under steady state conditions is 90 °C/W.
- Calculated based on maximum junction temperature. Package limitation current is 50 A.

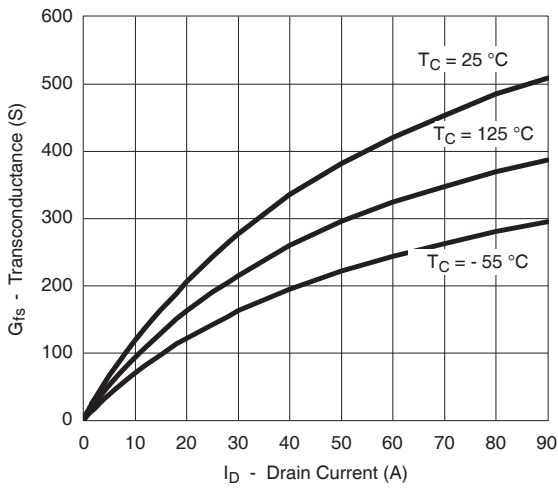
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



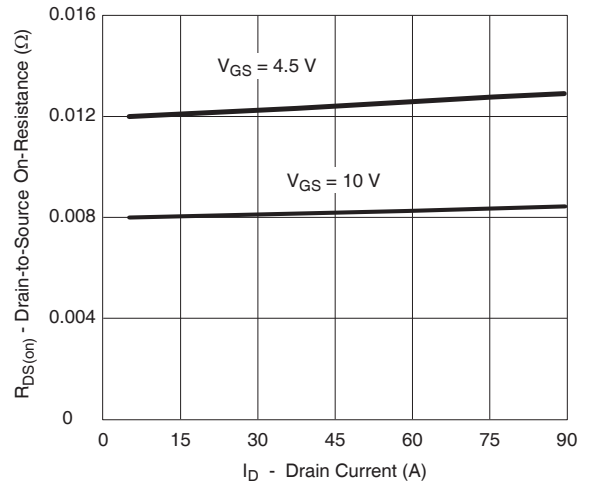
Output Characteristics



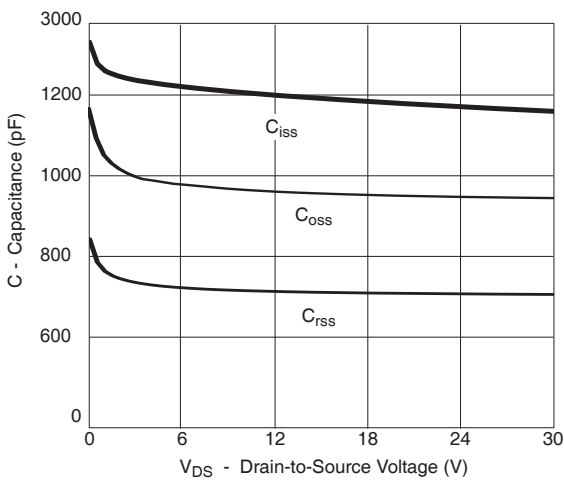
Transfer Characteristics



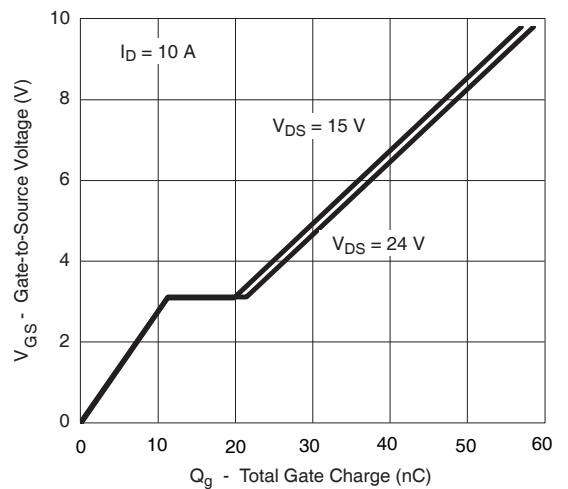
Transconductance



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

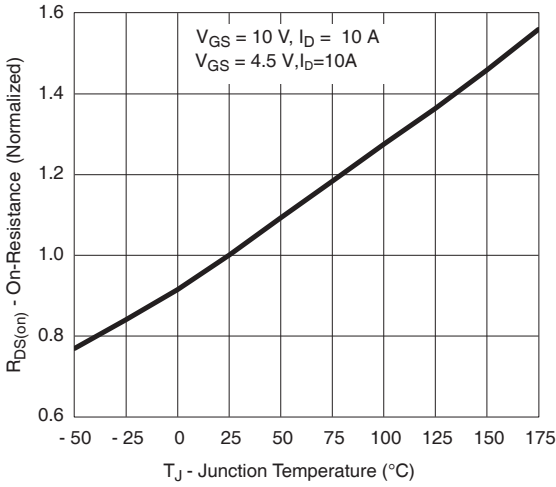


Capacitance

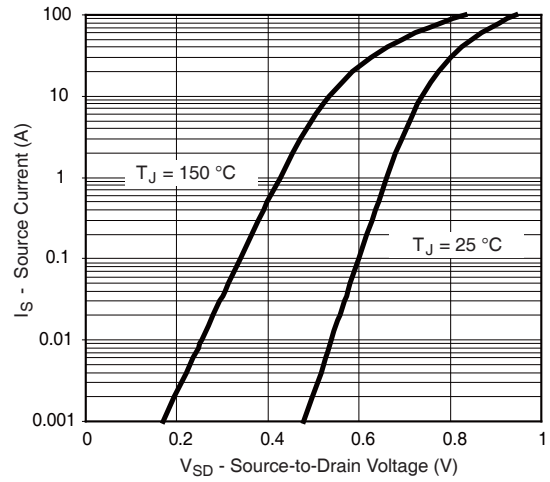


Gate Charge

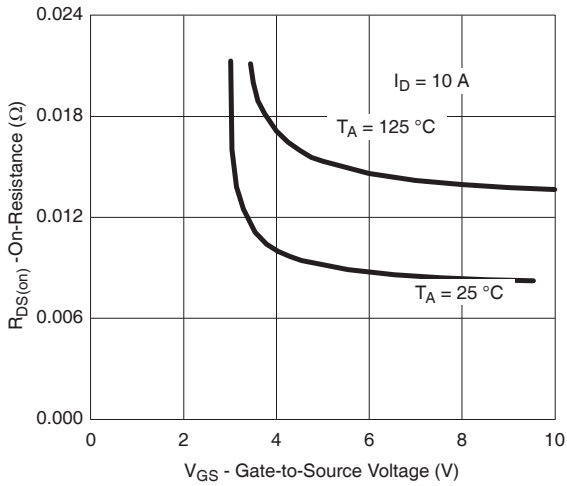
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



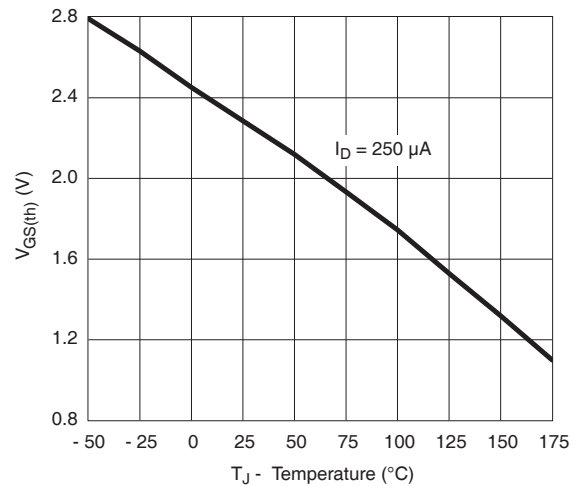
On-Resistance vs. Junction Temperature



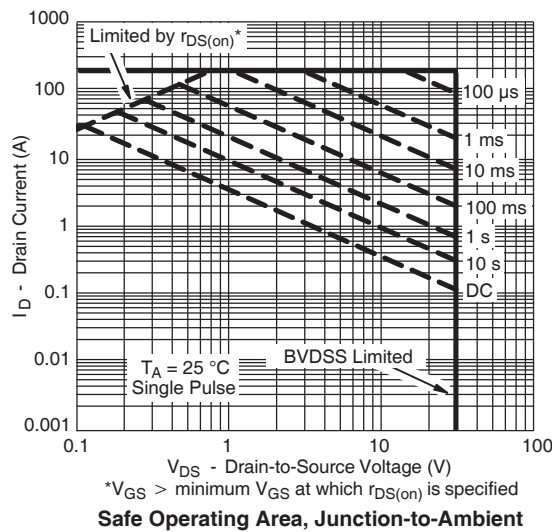
Forward Diode Voltage vs. Temperature



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

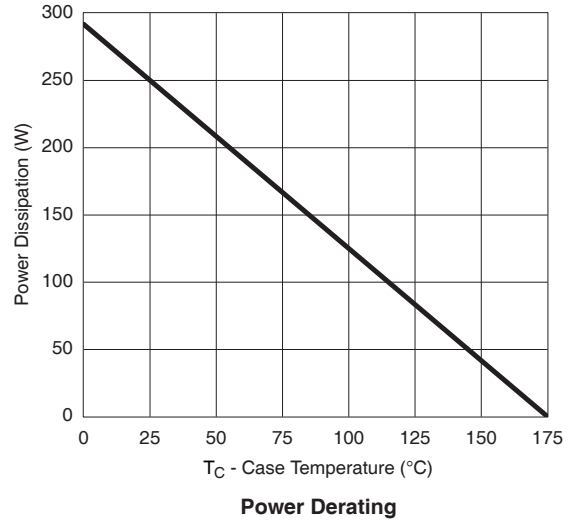
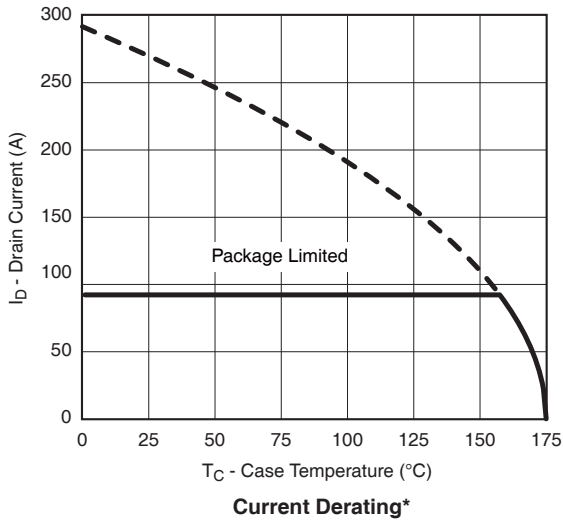


Threshold Voltage

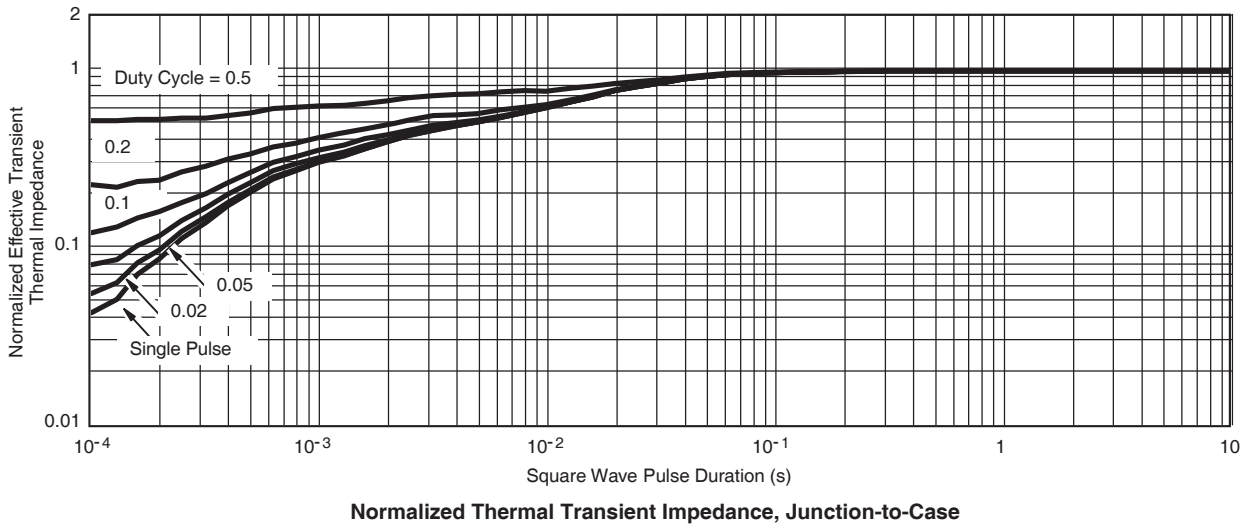


Safe Operating Area, Junction-to-Ambient

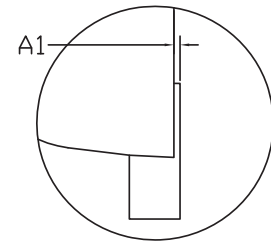
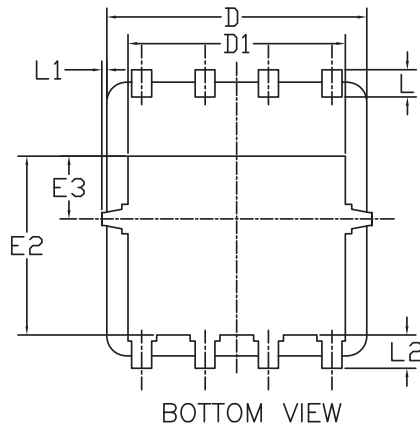
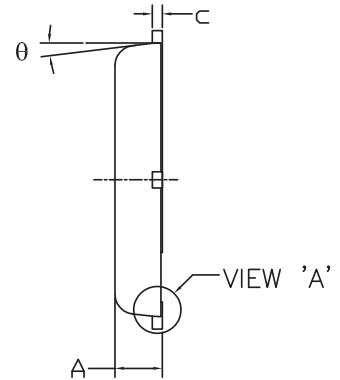
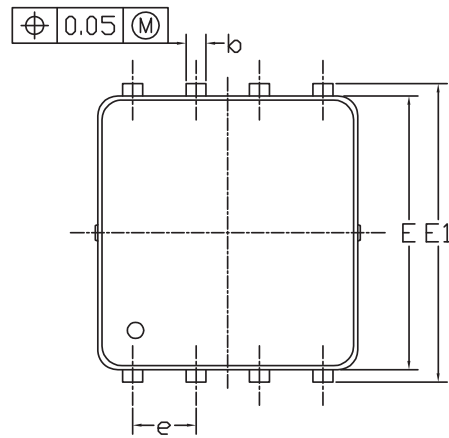
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



* 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.

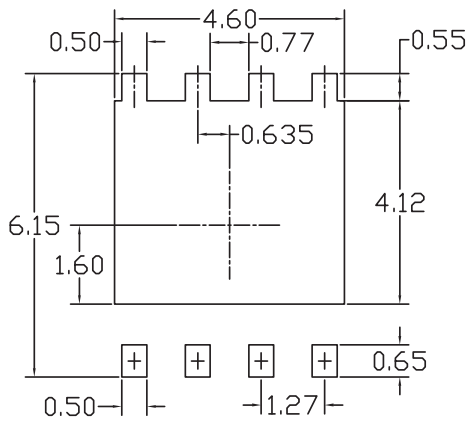


DFN5x6_8L_EP1_P PACKAGE OUTLIN



VIEW 'A'
(SCALE 5:1)

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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