P-Channel 30 V (D-S) MOSFET

PRODUCT SUMMARY			
V_{DS} (V)	$R_{DS(on)}$ (mΩ)(Typ.)	I_D (A)[a]	Q_g (Typ.)
- 30	10 at V_{GS} = - 10 V	- 50	43 nC
	14 at V_{GS} = - 4.5 V		

FEATURES

- DT-Trench Power MOSFET
- 100 % Rg and UIS Tested
- Low On-Resistance for Low Voltage Drop

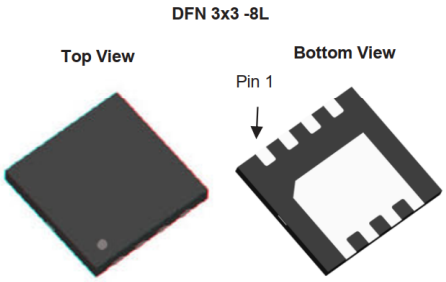
Pb free

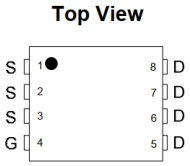
RoHS COMPLIANT

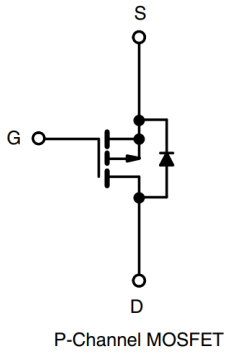
APPLICATIONS

- Battery, Load and Adaptor Switches
  - Notebook Computers
  - Notebook Battery Packs

DFN 3x3 -8L







P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise noted)				
PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	- 30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current (T_J = 150 °C)[a]	T_C = 25 °C	I_D	- 50	A
	T_C = 100 °C		- 34	
Pulsed Drain Current[b]		I_{DM}	- 200	
Single Avalanche Energy		E_{AS}	38	mJ
Maximum Power Dissipation[c]	T_C = 25 °C	P_D	48	W
	T_C = 100 °C		19.2	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to +150	°C

THERMAL RESISTANCE RATINGS			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-Ambient (PCB Mount)[d]	R_{thJA}	25	°C/W
Junction-to-Case (Drain)	R_{thJC}	2.6	

Notes

a. Calculated continuous current based on maximum allowablejunction temperature.
b. Repetitive rating; pulse width limited by max. junction temperature.
c. Pd is based on max. junction temperature, using junction-case thermal resistance.
d. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper,in a still air environment with Ta=25 °C.

SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Static						
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0, I_D = - 250 µA	- 30			V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250 µA	- 1.2		- 2.5	V
Gate-Source Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = - 30 V, V_{GS} = 0 V			- 1	µA
		V_{DS} = - 30 V, V_{GS} = 0 V, T_J = 55 °C			- 5	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} ≤ - 5 V, V_{GS} = - 10 V	- 50			A
Drain-Source On-State Resistance[a]	$R_{DS(on)}$	V_{GS} = - 10 V, I_D = - 15 A		10	12	mΩ
		V_{GS} = - 4.5 V, I_D = - 10 A		14	16	
Forward Transconductance[a]	g_{fs}	V_{DS} = - 5 V, I_D = - 15 A		45		S
Dynamic[b]						
Input Capacitance	C_{iss}	V_{DS} = - 15 V, V_{GS} = 0 V, f = 1 MHz		3810		pF
Output Capacitance	C_{oss}			446		
Reverse Transfer Capacitance	C_{rss}			345		
Total Gate Charge	Q_g	V_{DS} = - 15 V, V_{GS} = - 10 V, I_D = - 10 A		43		nC
Gate-Source Charge	Q_{gs}			13.5		
Gate-Drain Charge	Q_{gd}			28		
Gate Resistance	R_g	f = 1 MHz		3		Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = - 15 V, R_L = 1.5 Ω I_D ≅ -10 A, V_{GEN} = - 10 V, R_g = 1 Ω		15		ns
Rise Time	t_r			12		
Turn-Off DelayTime	$t_{d(off)}$			58		
Fall Time	t_f			12		
Drain-Source Body Diode Characteristics						
Continous Source-Drain Diode Current	I_S	T_C = 25 °C			- 50	A
Pulse Diode Forward Current	I_{SM}				- 200	
Body Diode Voltage	V_{SD}	I_S = - 1 A			- 1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F = -10 A, dI/dt = 100 A/µs, T_J = 25 °C		18		ns
Body Diode Reverse Recovery Charge	Q_{rr}			25		nC

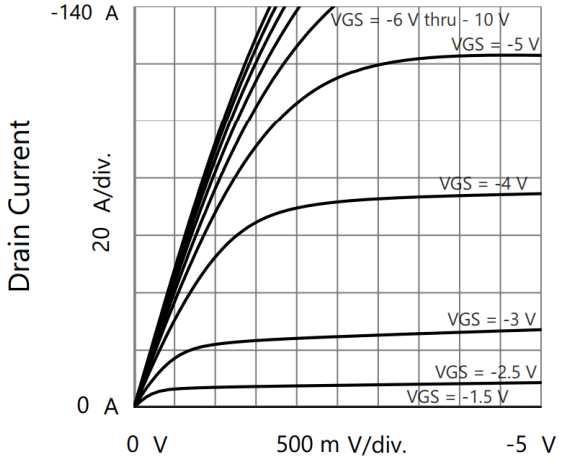
Notes:

a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.

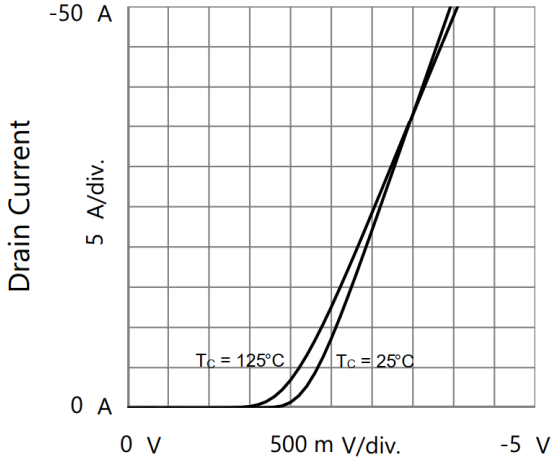
b. Guaranteed by design, not subject to production testing.

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.

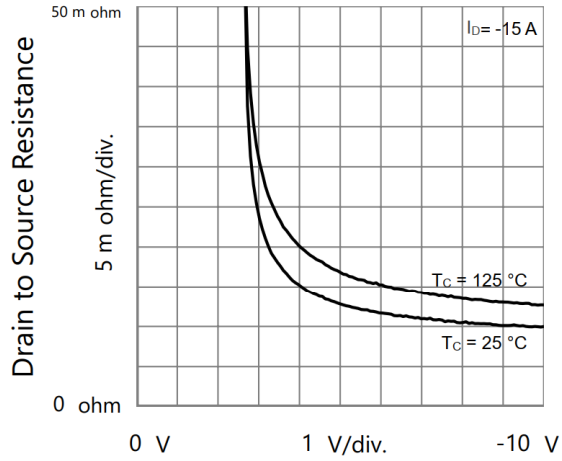
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



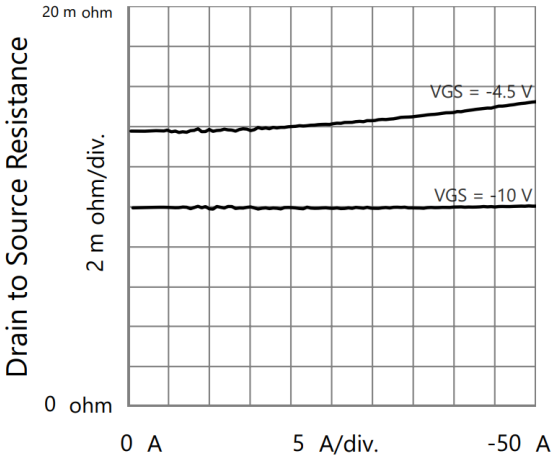
Output Characteristics



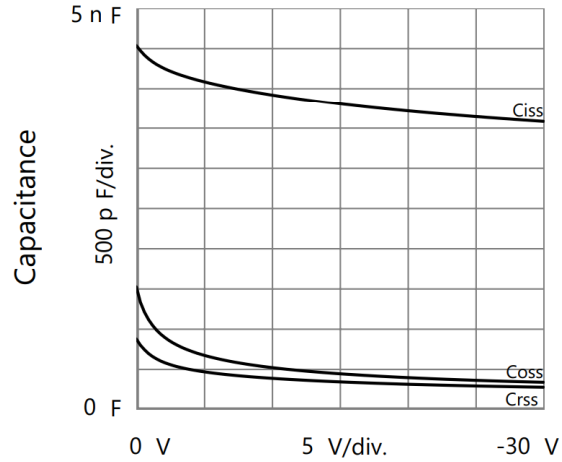
Transfer Characteristics



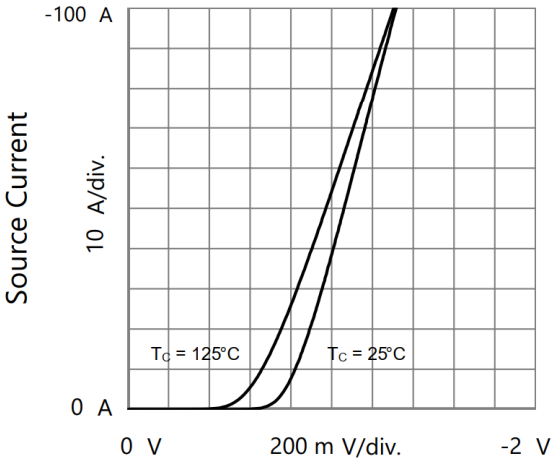
Drain to Source Resistance vs. Gate to Source Voltage



Drain to Source Resistance vs. Drain Current

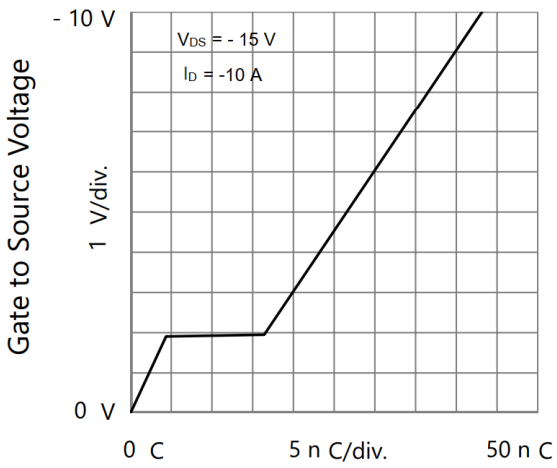


Capacitances

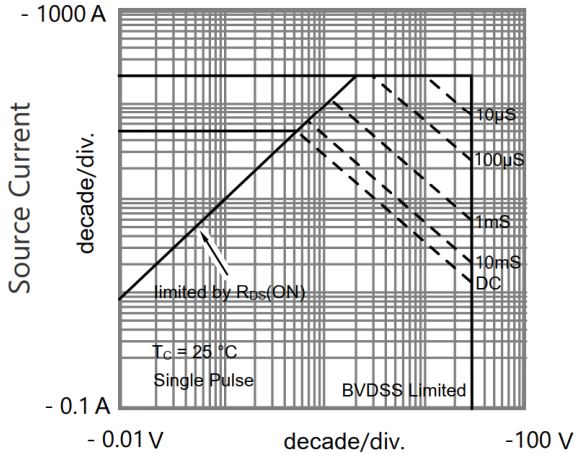


Body Diode Forward Characteristics

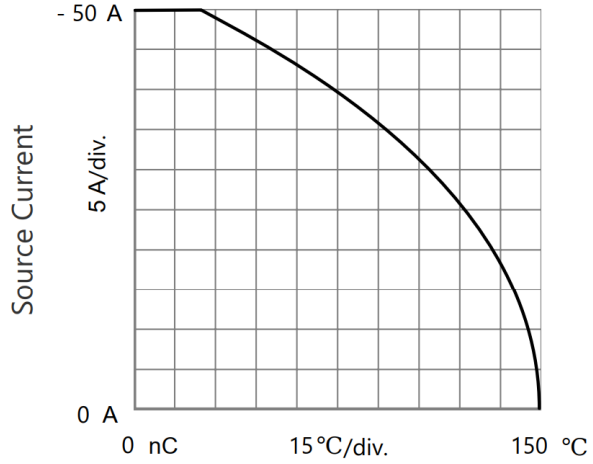
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



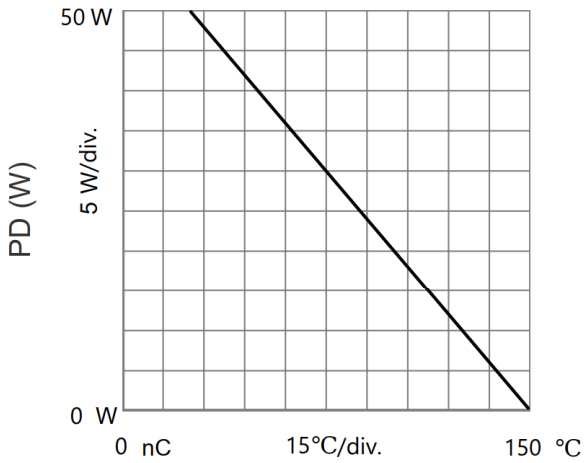
Gate to Source Voltage vs. GateCharge



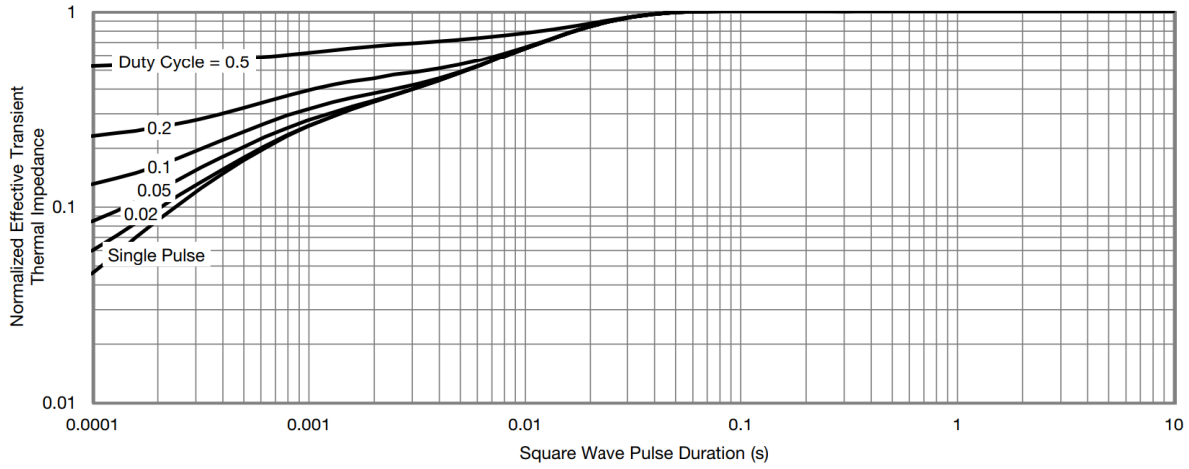
Safe Operating Area, Junction-to-Ambient



Current Derating

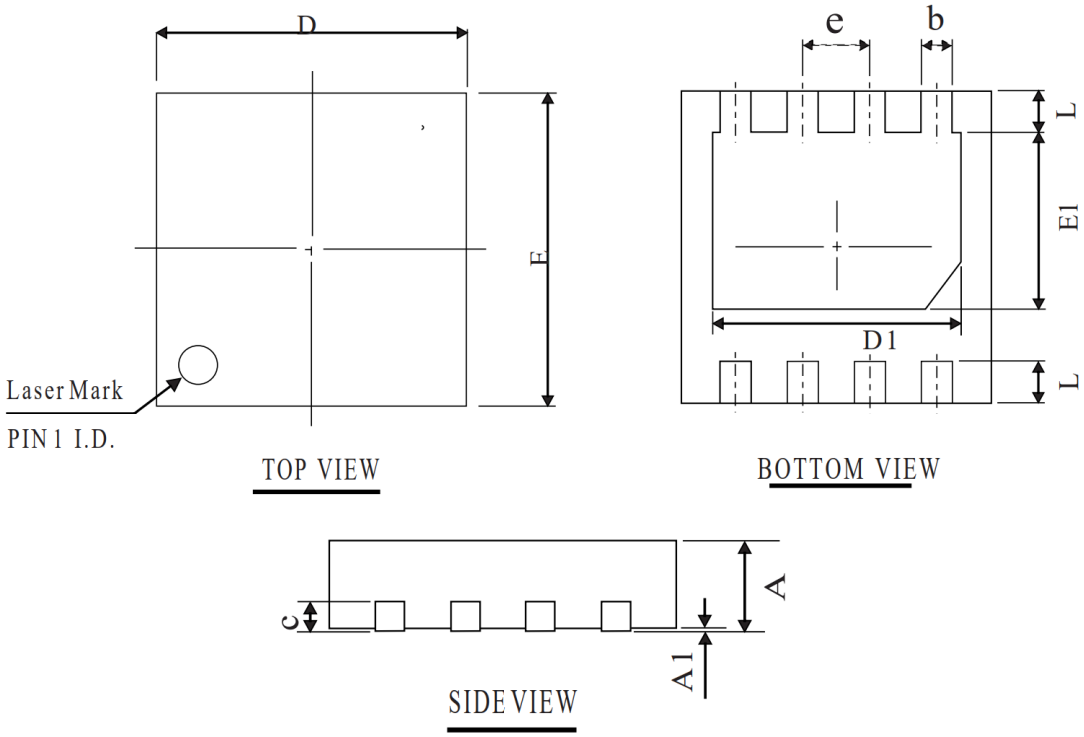


Power Derating



Normalized Thermal Transient Impedance, Junction-to-Case

DFN3*3-8L PACKAGE OUTLINE



COMMON DIMENSIONS
(UNITS OF MEASURE=mm)

SYMBOL	MIN	NOM	MAX
A	0. 60	0. 75	0. 90
A1	0. 00	0. 02	0. 08
b	0. 20	0. 30	0. 45
D	2. 85	3. 00	3. 15
E	2. 85	3. 00	3. 15
D1	2. 10	2. 40	2. 70
E1	1. 50	1. 70	2. 00
L	0. 20	0. 40	0. 60
c	0. 203 REF		
e	0. 65 BSC		

OTHER DIMENSIONS

A	0. 50	0. 55	0. 60
A	0. 40	0. 45	0. 50

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