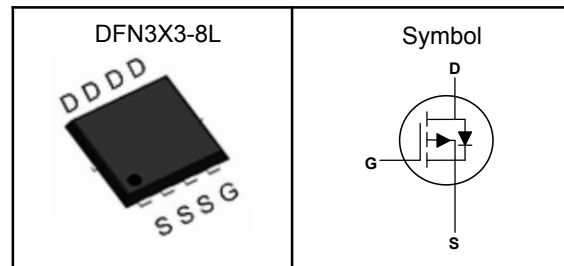


P-Channel Enhancement Mode MOSFET
Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V _{DSS}	-20	V
R _{DS(ON)-Typ}	5.8	mΩ
I _D	-55	A

Absolute Maximum Ratings (T_A=25°C, Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit	
V _{DSS}	Drain-Source Voltage	-20	V	
V _{GSS}	Gate-Source Voltage	±12	V	
T _J	Maximum Junction Temperature	-55 to 150	°C	
T _{STG}	Storage Temperature Range	-55 to 150	°C	
I _{DM} ^①	Pulse Drain Current Tested	-220	A	
I _D	Continuous Drain Current	T _C =25°C	-55	A
I _D	Continuous Drain Current	T _C =100°C	-35	A
P _D	Maximum Power Dissipation	T _C =25°C	42	W
E _{AS}	Avalanche Energy, Single pulse	43	mJ	

Thermal Characteristics

Symbol	Parameter	Rating	Unit
R _{θJC}	Thermal Resistance-Junction to Case	3	°C/W

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C.

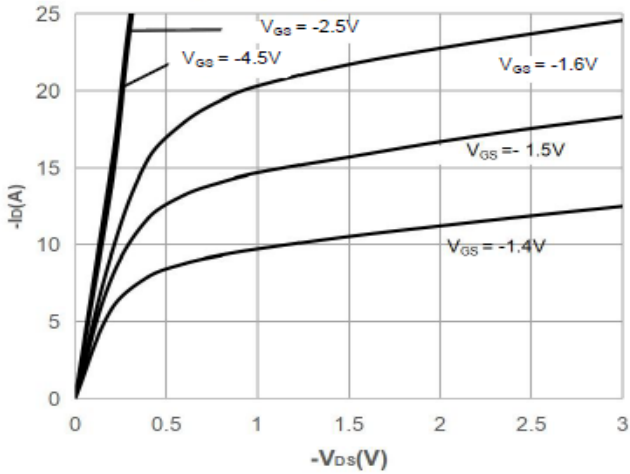
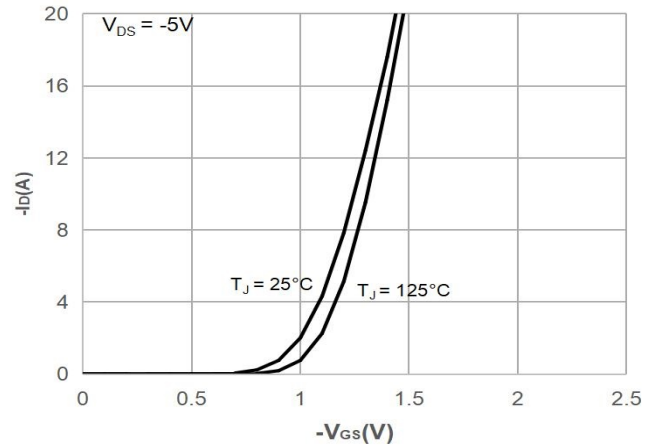
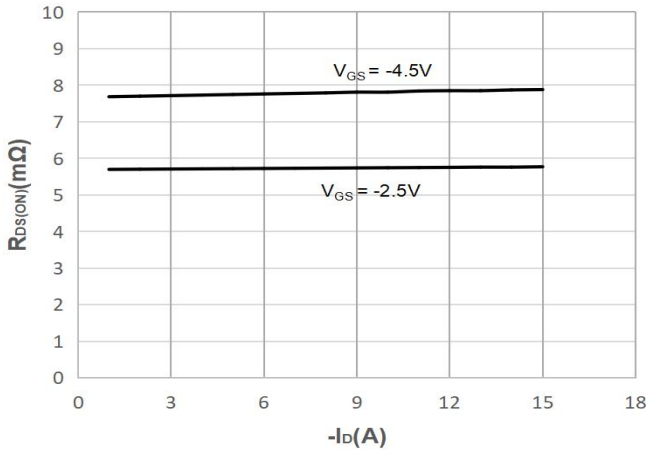
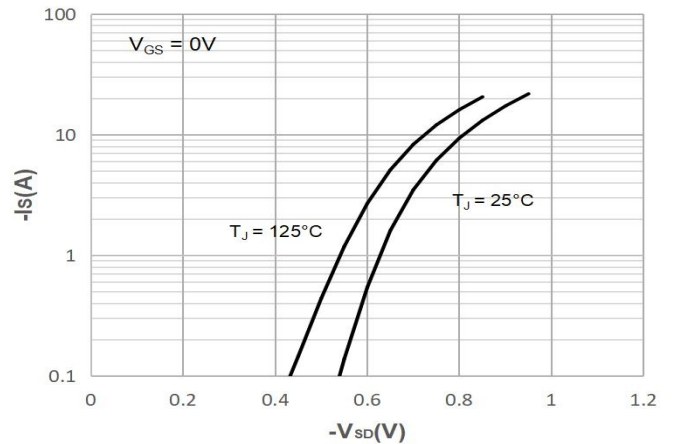
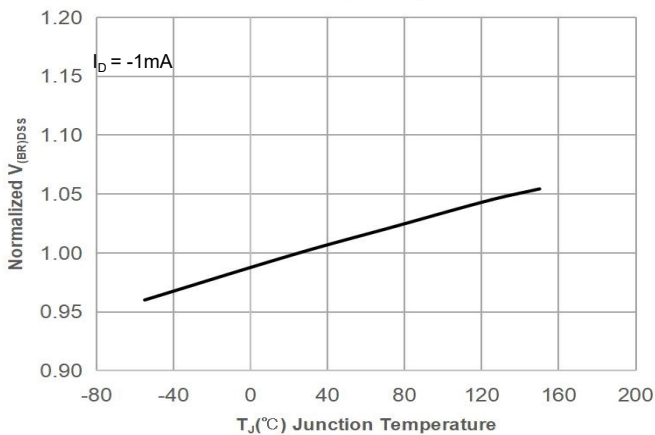
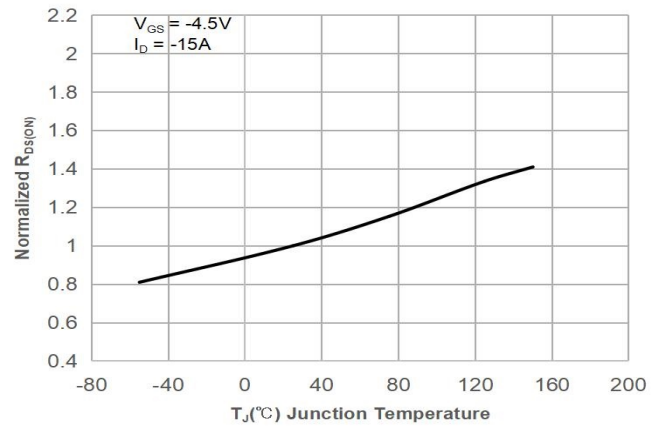
Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.

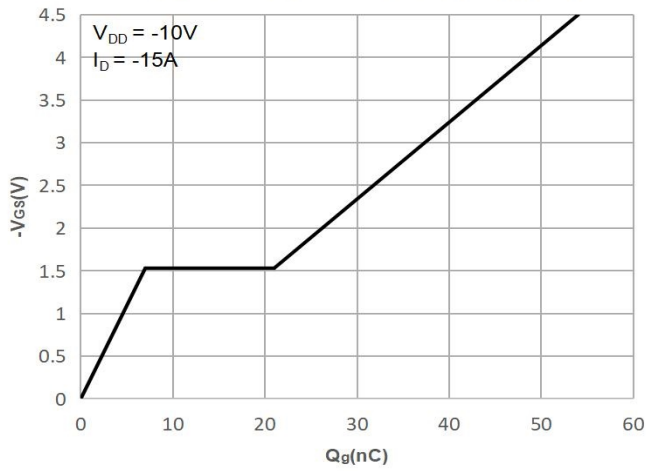
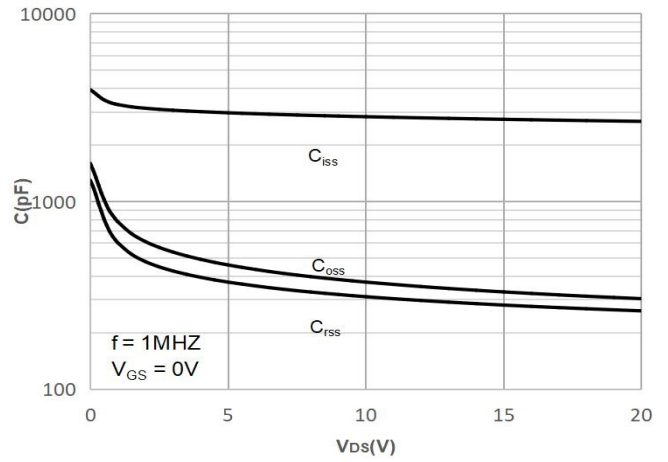
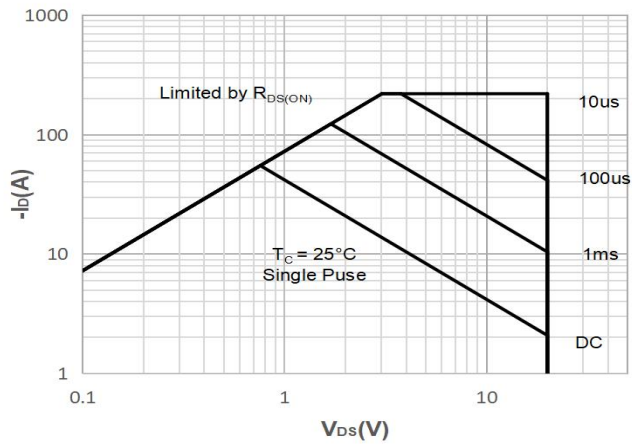
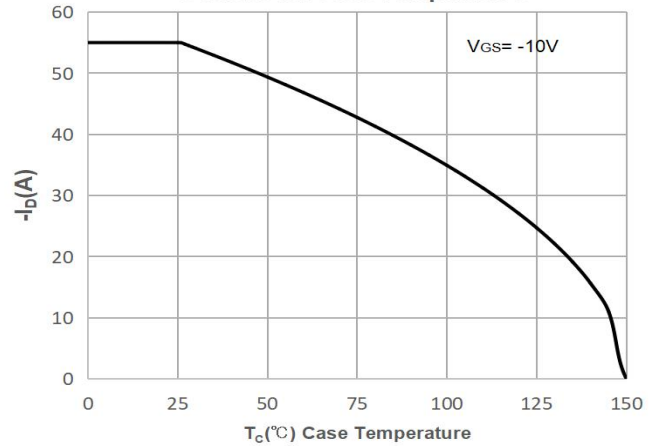
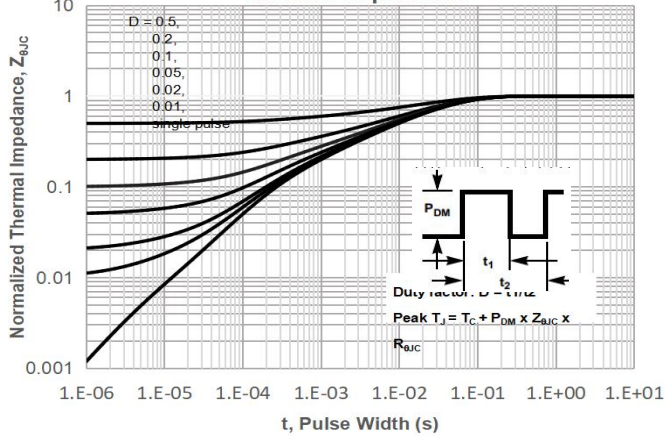
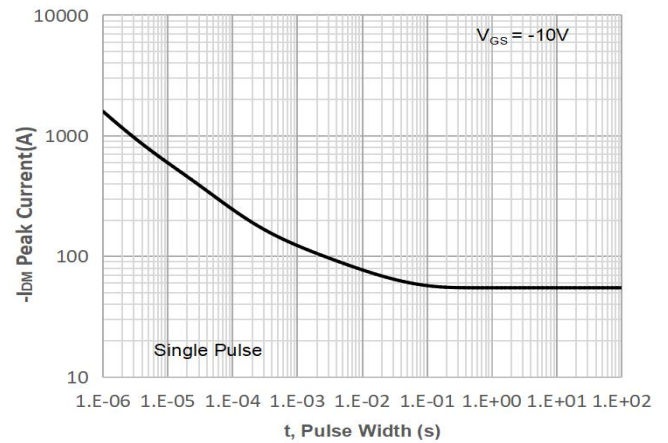
**P-Channel Enhancement Mode MOSFET****Electrical Characteristics** ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

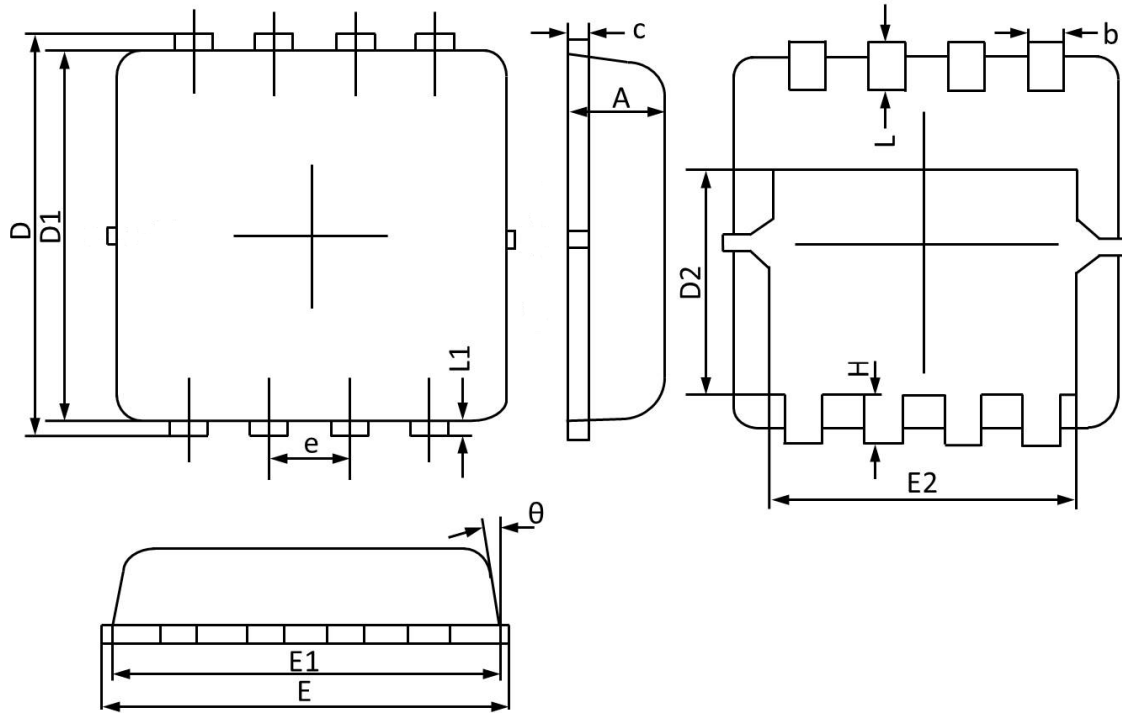
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-20V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	---	-1.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=-4.5V, I_D=-15A$	---	5.8	7.5	m Ω
		$V_{GS}=-2.5V, I_D=-10A$	---	7.8	10	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-10V, \text{Freq.}=1\text{MHz}$	---	2840	---	pF
C_{oss}	Output Capacitance		---	372	---	
C_{rss}	Reverse Transfer Capacitance		---	311	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V, V_{DS}=-10V, I_D=-13A, R_G=3\Omega$	---	13	---	nS
T_r	Turn-on Rise Time		---	105	---	
$T_{d(off)}$	Turn-off Delay Time		---	145	---	
T_f	Turn-off Fall Time		---	150	---	
Q_g	Total Gate Charge	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-15A$	---	54	---	nC
Q_{gs}	Gate-Source Charge		---	7	---	
Q_{gd}	Gate-Drain Charge		---	14	---	
Source-Drain Characteristics						
I_S	Maximum Continuous Drain-Source Diode Forward Current		---	---	-55	A
I_{sm}	Maximum Pulsed Drain-Source Diode Forward Current		---	---	-220	V
V_{SD}	Diode Forward Voltage	$I_S=-10A, V_{GS}=0V$	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	$I_F=-15A, dI_F/dt=100A/\mu s$	---	26	---	nS
Q_{rr}	Reverse Recovery Charge		---	15	---	nC

Note ④: Pulse test (pulse width 300 μs , duty cycle 2%).

Note ⑤: Guaranteed by design, not subject to production testing.

P-Channel Enhancement Mode MOSFET
Typical Characteristics
Figure 1: Output Characteristics

Figure 2: Typical Transfer Characteristics

Figure 3: On-resistance vs. Drain Current

Figure 4: Body Diode Characteristics

Figure 5: Normalized Breakdown voltage vs. Junction Temperature

Figure 6: Normalized on Resistance vs. Junction Temperature


P-Channel Enhancement Mode MOSFET
Figure 7 : Gate Charge Characteristics

Figure 8 : Capacitance Characteristics

Figure 9: Maximum Safe Operating Area

Figure 10: Maximum Continuous Driian Current vs. Case Temperature

Figure 11: Normalized Maximum Transient Thermal Impedance

Figure 12: Peak Current Capacity


P-Channel Enhancement Mode MOSFET
DFN3X3-8L Package Outline Dimensions


Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.85	E1	2.90	3.10	3.25
b	0.24	0.30	0.35	E2	2.35	2.50	2.60
c	0.10	0.17	0.25	e	0.65 BSC		
D	3.10	3.30	3.45	H	0.30	0.40	0.50
D1	2.90	3.05	3.20	L	0.30	0.40	0.50
D2	1.45	1.70	1.95	L1	--	0.13	--
E	3.05	3.25	3.40	theta	0°		14°