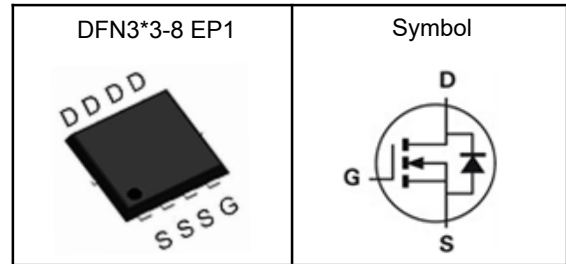


N-Channel Enhancement Mode MOSFET
Features

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	30	V
$R_{DS(ON)-Typ}$	4.5	m Ω
I_D	65	A

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$I_{DM}^{①}$	Pulse Drain Current Tested	260	A
I_D	Continuous Drain Current	65	A
P_D	Maximum Power Dissipation	45	W
E_{AS}	Avalanche Energy, Single pulse	150	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	---	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2.8	$^\circ\text{C/W}$

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

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150 $^\circ\text{C}$.

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



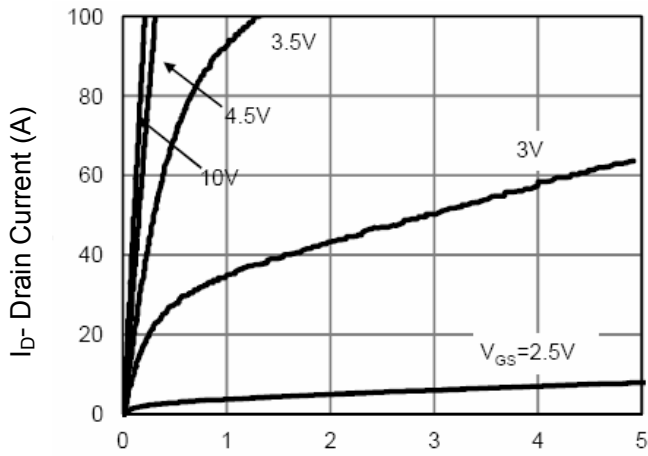
N-Channel Enhancement Mode MOSFET

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

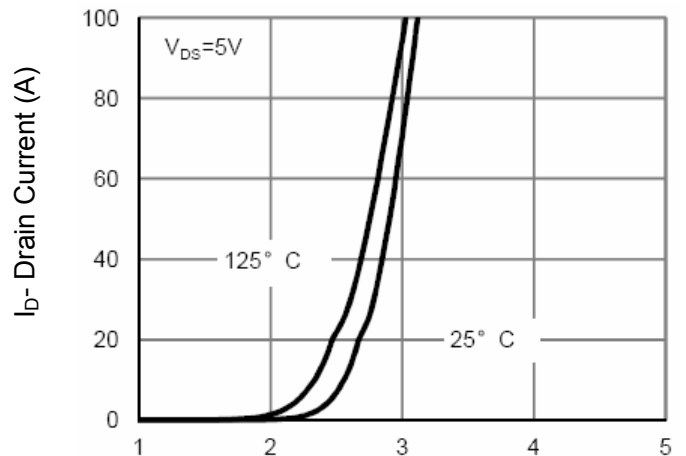
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	---	2.2	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=20A$	---	4.5	6	m Ω
		$V_{GS}=4.5V, I_D=20A$	---	6.5	8.5	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=15V, \text{Freq.}=1\text{MHz}$	---	1784	---	pF
C_{oss}	Output Capacitance		---	266	---	
C_{rss}	Reverse Transfer Capacitance		---	212	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=5V, R_G=6\Omega, V_{GS}=10V, I_D=20A$	---	7	---	nS
T_r	Turn-on Rise Time		---	6	---	
$T_{d(off)}$	Turn-off Delay Time		---	30	---	
T_f	Turn-off Fall Time		---	8	---	
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D=20A$	---	38.4	---	nC
Q_{gs}	Gate-Source Charge		---	5.8	---	
Q_{gd}	Gate-Drain Charge		---	7.9	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=20A, V_{GS}=0V$	---	0.85	1.2	V
t_{rr}	Reverse Recovery Time	$I_F=20A, di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	---	47	nS
Q_{rr}	Reverse Recovery Charge		---	---	25	nC

Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

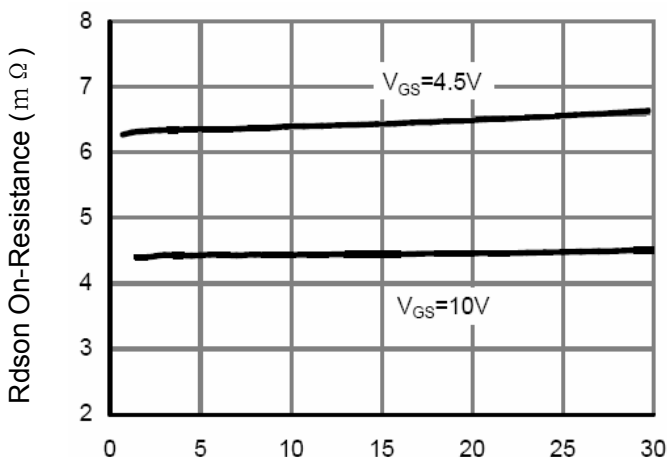
Note ⑤: Guaranteed by design, not subject to production testing.

N-Channel Enhancement Mode MOSFET
Typical Characteristics


Vds Drain-Source Voltage (V)

Figure 1 Output Characteristics


Vgs Gate-Source Voltage (V)

Figure 2 Transfer Characteristics


Id- Drain Current (A)

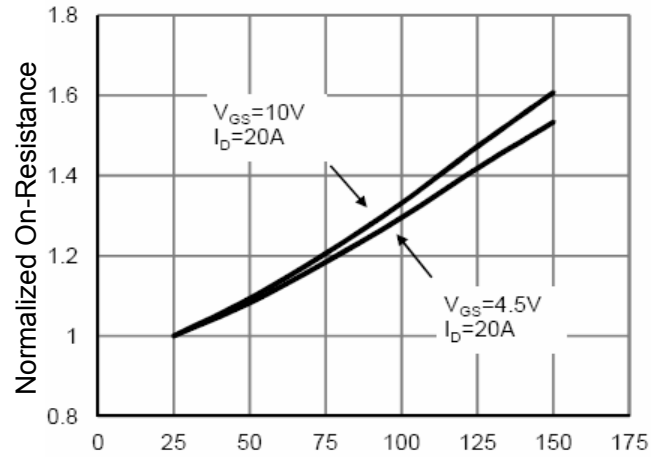
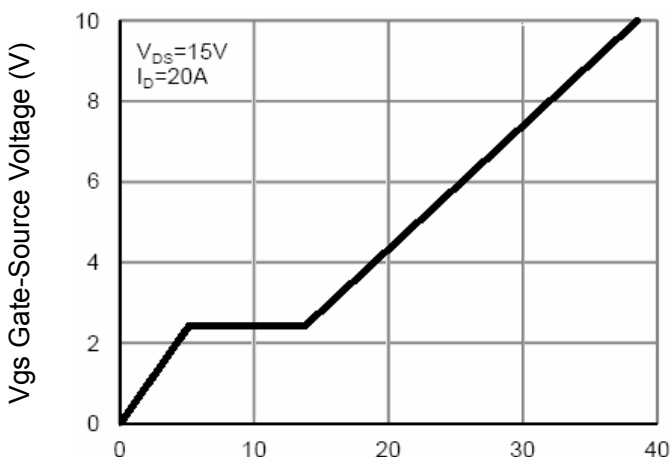
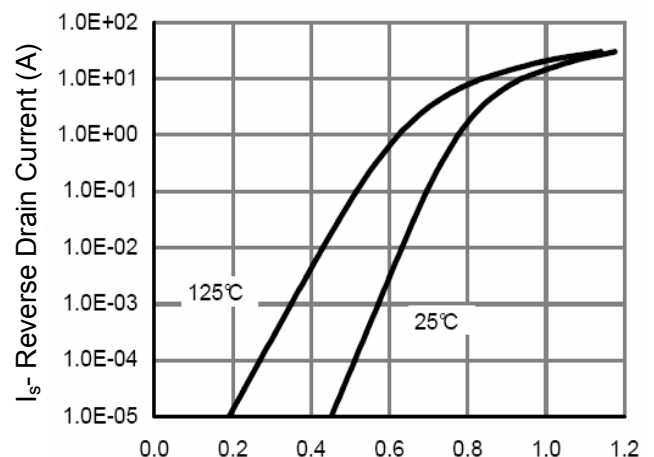
Figure 3 Rdson- Drain Current

 T_J-Junction Temperature(°C)

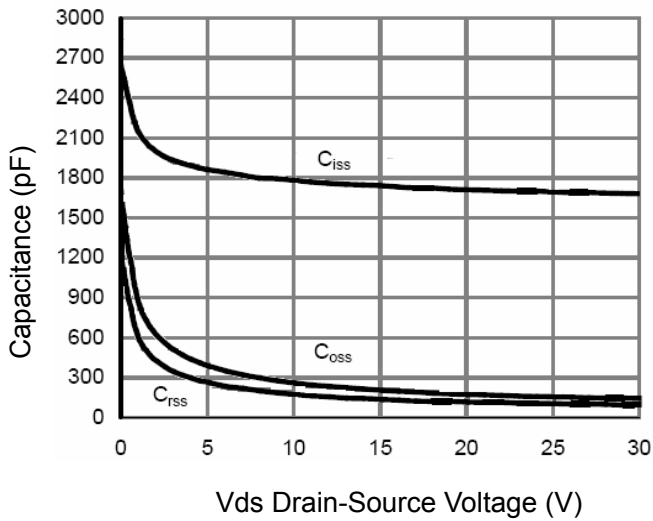
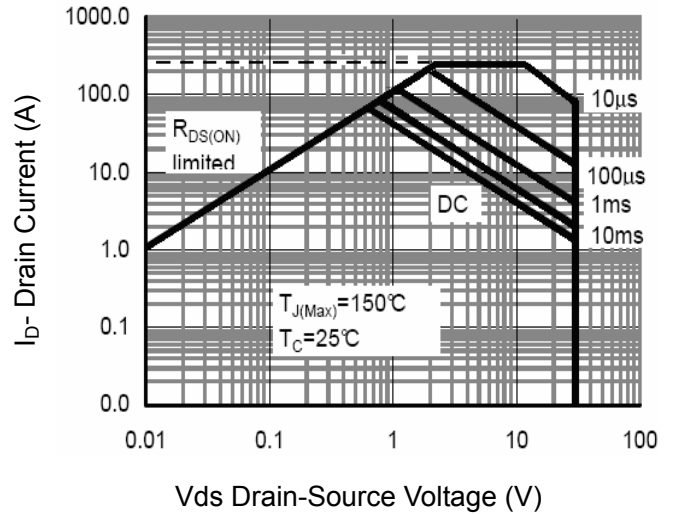
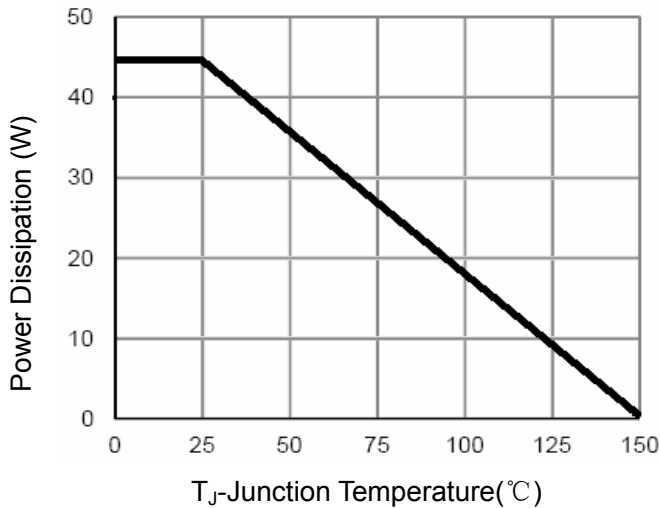
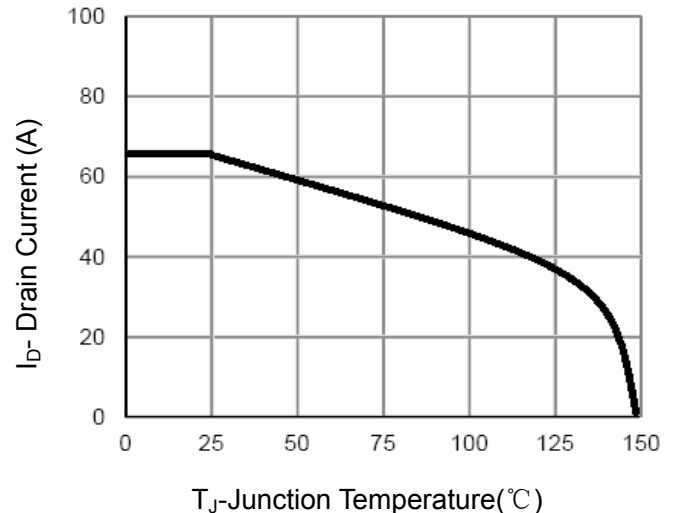
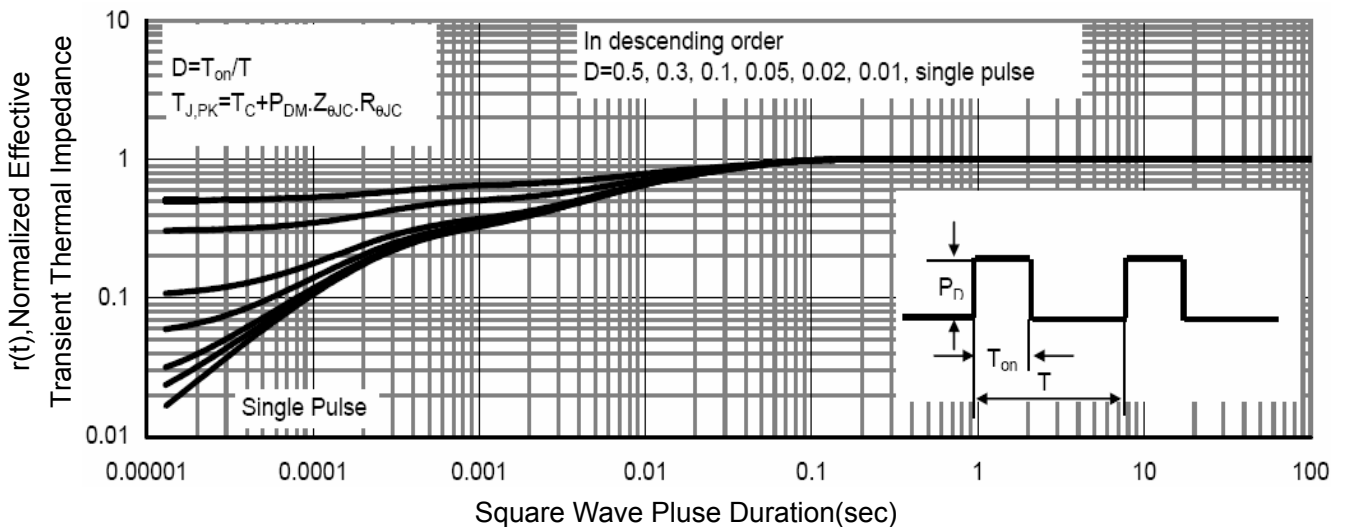
Figure 4 Rdson-Junction Temperature


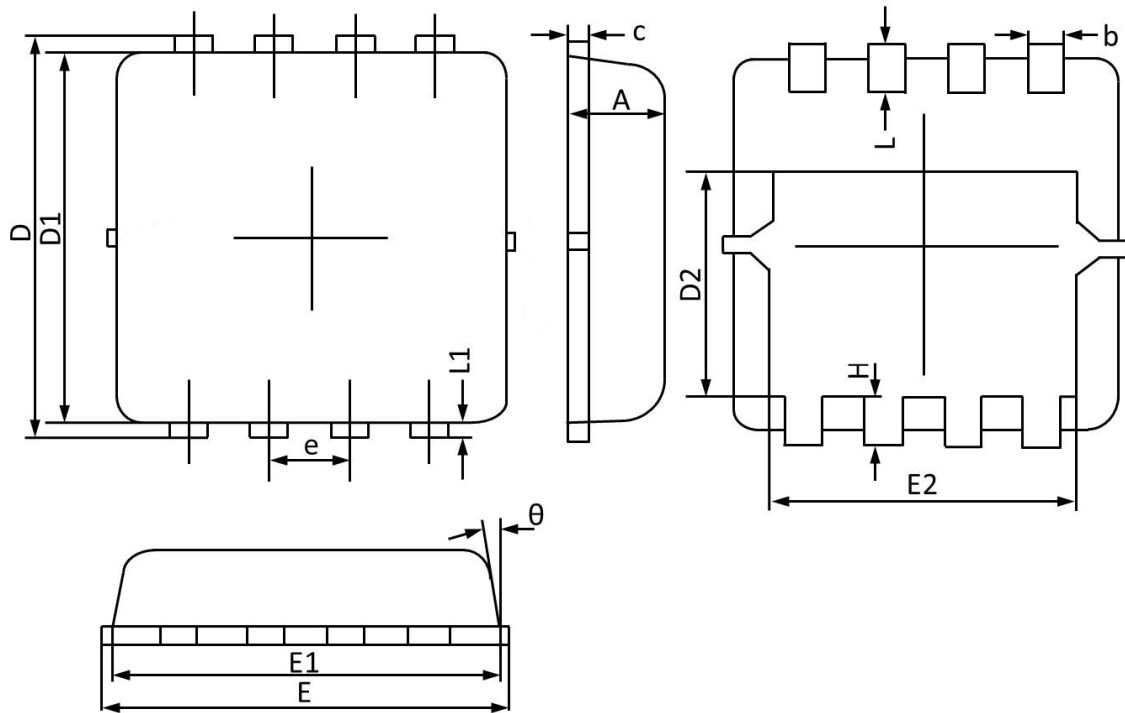
Qg Gate Charge (nC)

Figure 5 Gate Charge


Vsd Source-Drain Voltage (V)

Figure 6 Source- Drain Diode Forward

N-Channel Enhancement Mode MOSFET

Figure 7 Capacitance vs Vds

Figure 8 Safe Operation Area

Figure 9 Power De-rating

Figure 10 Current De-rating

Figure 11 Normalized Maximum Transient Thermal Impedance

N-Channel Enhancement Mode MOSFET
DFN3*3-8 EP1 Package Outline Data


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°