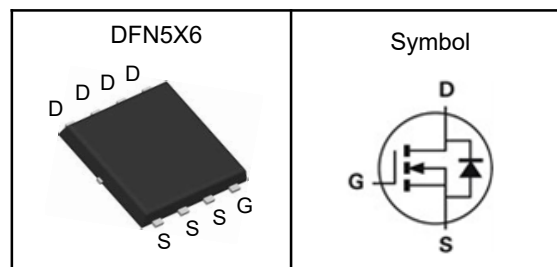


N-Channel Enhancement Mode MOSFET

Features

- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Pin Description



Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	100	V
$R_{DS(ON)-Typ}$	3.6	mΩ
I_D	120	A

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

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		± 20	V
T_J	Maximum Junction Temperature		-55 to 150	$^{\circ}C$
T_{STG}	Storage Temperature Range		-55 to 150	$^{\circ}C$
EAS	Single Pulse Avalanche Energy ³		320	mJ
$I_{DM}^{①}$	Pulse Drain Current Tested		480	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	120	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$	131.6	W

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		48	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹		0.95	$^{\circ}C/W$

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

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

Note ③ : Surface Mounted on $1in^2$ 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 =250uA	100	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V	---	---	1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.2	1.8	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance	V _{GS} =10V, I _D =20A	---	3.6	4.5	mΩ
		V _{GS} =4.5V, I _D =15A	---	5.2	6.8	mΩ
Dynamic Characteristics ^⑤						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, Freq.=1MHz	---	5135	---	pF
C _{oss}	Output Capacitance		---	768	---	
C _{rss}	Reverse Transfer Capacitance		---	22	---	
T _{d(on)}	Turn-on Delay Time	V _{DD} =50V,V _{GS} =10V , I _D =20A,R _G =3Ω	---	22.2	---	nS
T _r	Turn-on Rise Time		---	37.8	---	
T _{d(off)}	Turn-off Delay Time		---	95.2	---	
T _f	Turn-off Fall Time		---	35.6	---	
Q _g	Total Gate Charge	V _{DS} =50V,V _{GS} =10V , I _D =20A	---	103	---	nC
Q _{gs}	Gate-Source Charge		---	17.5	---	
Q _{gd}	Gate-Drain Charge		---	30.2	---	
Source-Drain Characteristics						
V _{SD}	Diode Forward Voltage	I _S =20A, V _{GS} =0V	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _F =20A,V _{GS} =0V , dI _F /dt=100A/us	---	59.4	---	nS
Q _{rr}	Reverse Recovery Charge		---	91.8	---	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

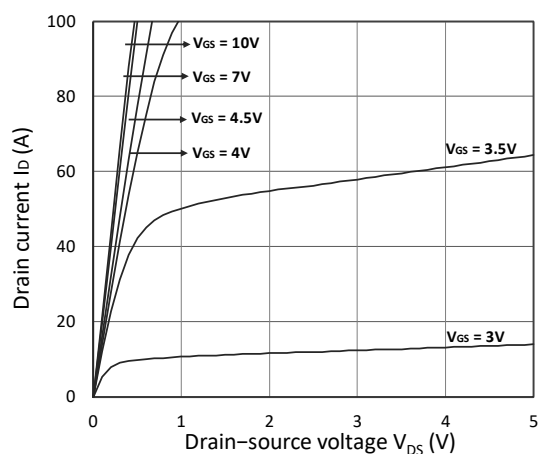


Figure 1. Output Characteristics

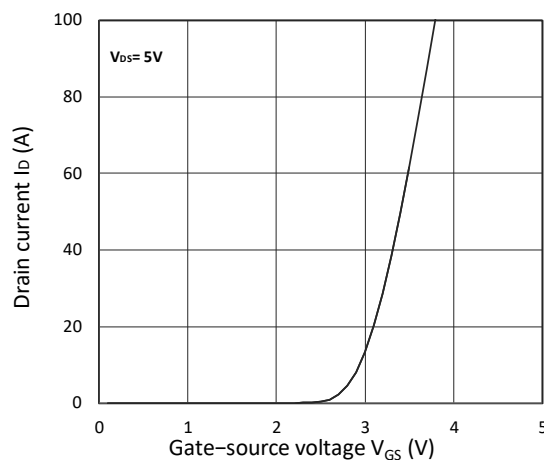


Figure 2. Transfer Characteristics

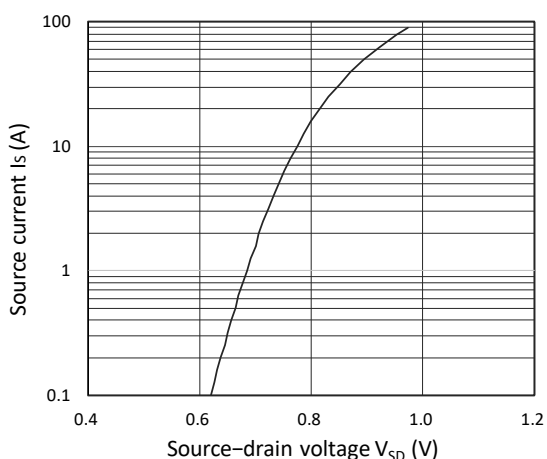


Figure 3. Forward Characteristics of Reverse

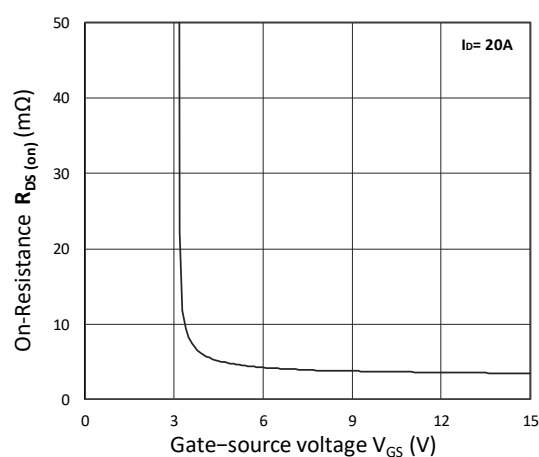


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

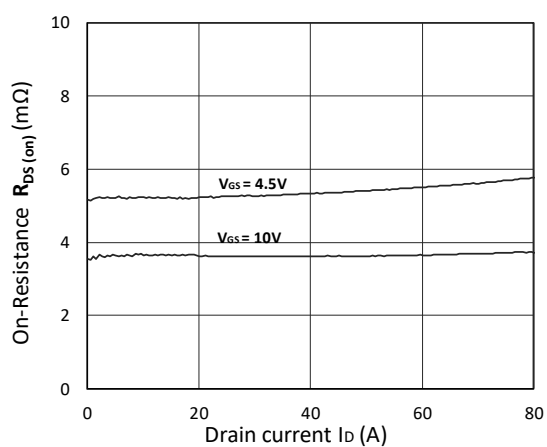


Figure 5. $R_{DS(ON)}$ vs. I_D

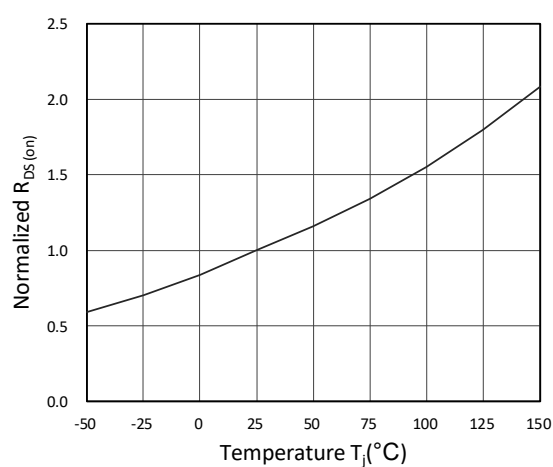


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

N-Channel Enhancement Mode MOSFET

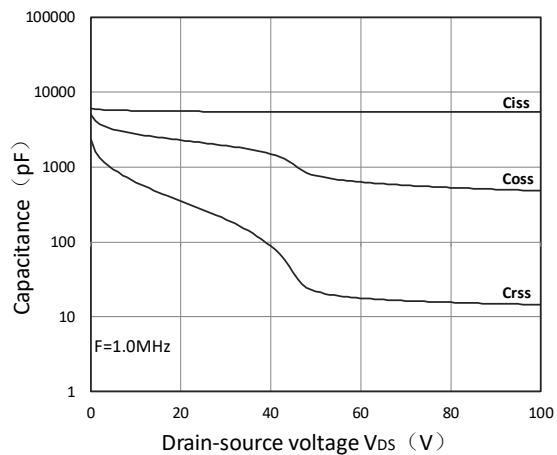


Figure 7. Capacitance Characteristics

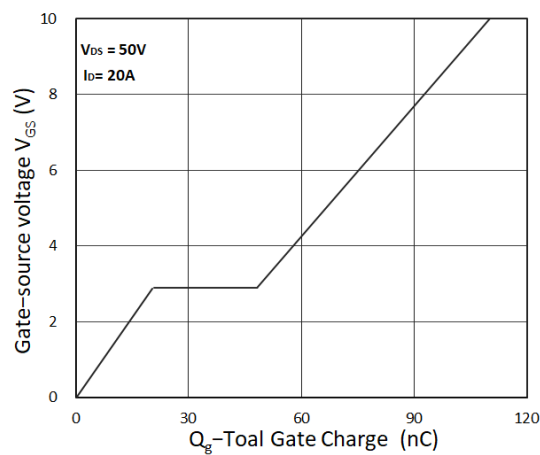


Figure 8. Gate Charge Characteristics

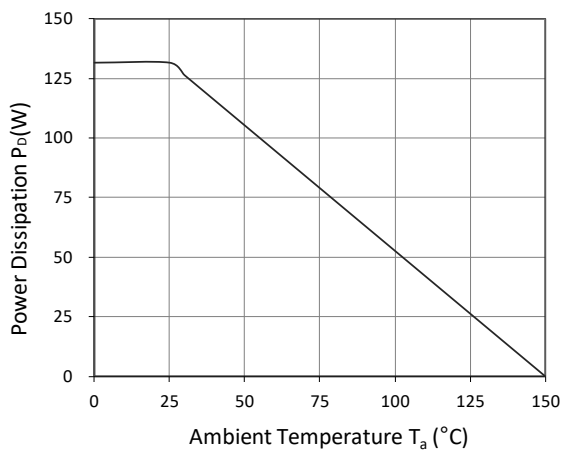


Figure 9. Power Dissipation

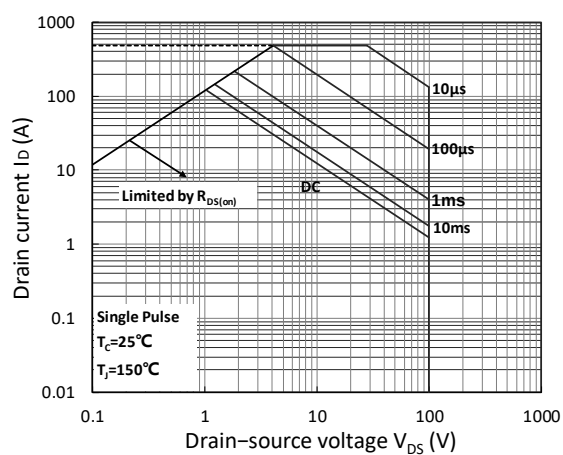


Figure10. Safe Operating Area

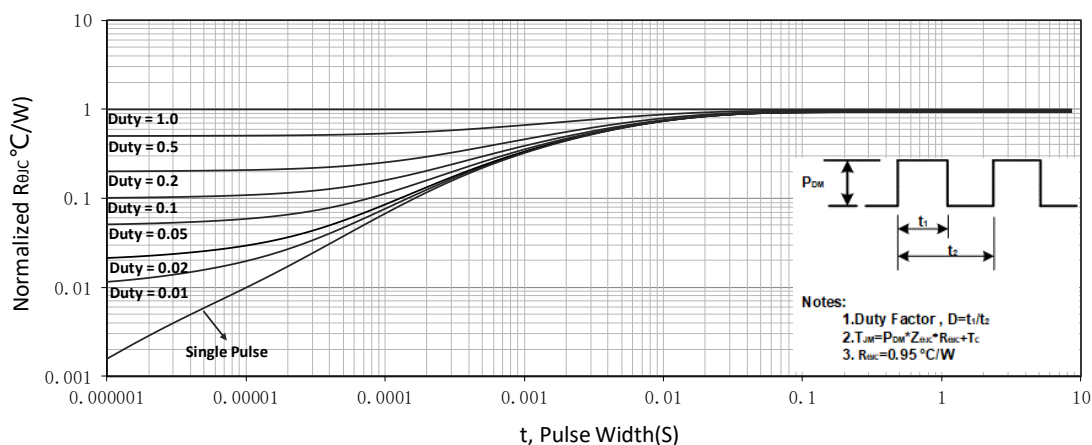
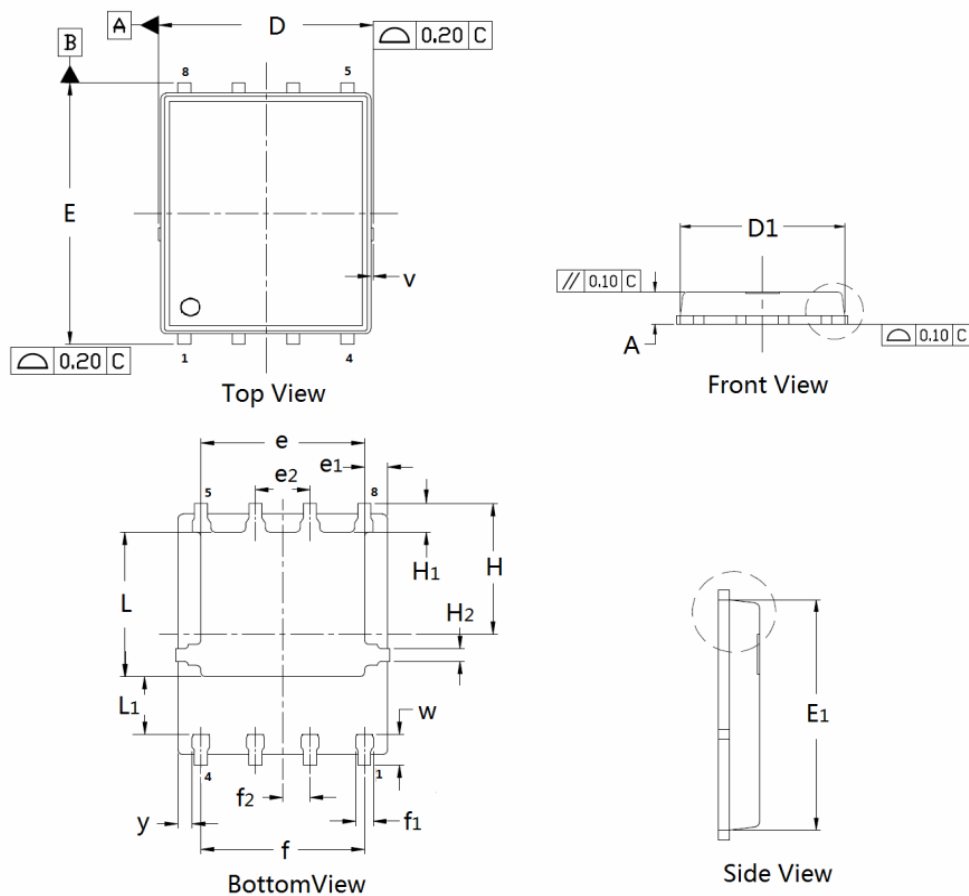


Figure 11. Normalized Maximum Transient Thermal Impedance

N-Channel Enhancement Mode MOSFET
DFN5×6 Package Outline Data

DIMENSIONS (unit : mm)

Symbol		Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.02	1.10	D	4.90	4.98	5.10
D ₁	4.80	4.89	5.10	E	5.90	6.11	6.25
E ₁	5.65	5.74	5.95	e	3.72	3.80	3.92
e ₁	--	0.5	--	e ₂	--	1.	--
f	--	3.8	--	f ₁	0.31	0.37	0.51
f ₂	--	0.6	--	H	--	3.	--
H ₁	0.59	0.63	0.79	H ₂	0.26	0.28	0.32
L	3.35	3.45	3.65	L ₁	--	1.	--
v	--	0.1	--	w	0.64	0.68	0.84
y	--	0.3	--		--		--