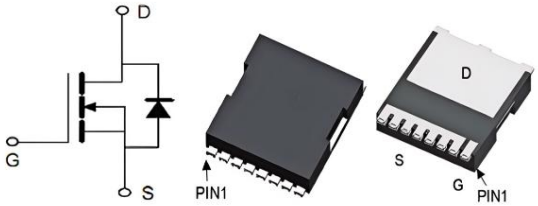
N-Channel Power MOSFET 100V/371A

Parameter	Value	Unit
VDS	100	V
RDS(on)	1.05	mΩ
ID	371	A



TOLL

FEATURES

- Ultra Low Gate Charge cause lower driving requirements
- 100% Avalanche Tested

APPLICATIONS

- Load Switch
- PWM Application
- Power Management

MAXIMUM RATED VALUES

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V(BR)DSS	Drain-Source Breakdown Voltage		100	V
VGS	Gate-Source Voltage		±20	V
Tj	Maximum Junction Temperature		150	°C
Tstg	Storage Temperature Range		-55 to 150	°C
IS	Diode Continuous Forward Current	TC=25°C	298	A
Mounted on Large Heat Sink				
EAS	Single Pulse Avalanche Energy (Note1)		2600	mJ
IDM	Pulse Drain Current Tested (Note2)	TC=25°C	1300	A
ID	Continuous Drain current(Silicon limit)	TC=25°C	371	A
PD	Maximum Power Dissipation	TC=25°C	357	W
RθJC	Thermal Resistance Junction−to−Case,		0.35	°C/W

ELECTRICAL CHARACTERISTICS (at TJ = 25°C unless otherwise specified)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_J= 25°C (unless otherwise stated)						
V(BR)DSS	Drain- Source Breakdown Voltage	VGS=0V, ID=250μA	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA

VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	2	--	4	V
RDS(on)	Drain-Source On-State Resistance (Note3)	VGS=10V, ID=50A	--	1.05	1.2	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note4)						
Ciss	Input Capacitance	VDS=50V, VGS=0V, f=1MHz	--	12200	--	pF
Coss	Output Capacitance		--	4850	--	pF
Crss	Reverse Transfer Capacitance		--	96	--	pF
Qg	Total Gate Charge	VDS=50V ID=50A VGS=10V	--	199	--	nC
Qgs	Gate-Source Charge		--	60	--	nC
Qgd	Gate-Drain Charge		--	52	--	nC
RG	Reverse Transfer Capacitance	f=1MHz	--	4.5	--	Ω
Switching Characteristics (Note4)						
td(on)	Turn-on Delay Time	VDS=50V, ID=50A, RG=3Ω, VGS=10V	--	38	--	ns
tr	Turn-on Rise Time		--	63	--	ns
td(off)	Turn-off Delay Time		--	144	--	ns
tf	Turn-off Fall Time		--	84	--	ns
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
VSD	Forward on Voltage	IS=75A,VGS=0V,	--	--	1.2	V

Note:

1. Limited by TJ max, starting TJ = 25° C, RG = 25Ω, VD =50V, VGS =10V. Part not recommended for use above this value.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

CHARACTERISTICS DIAGRAMS

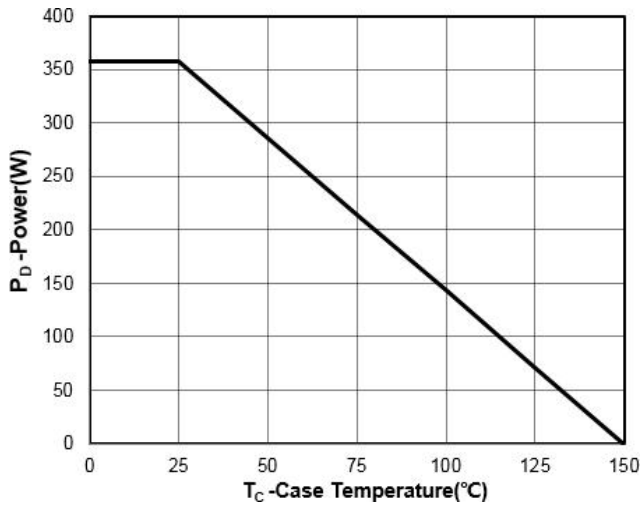


Figure1：Power De-rating

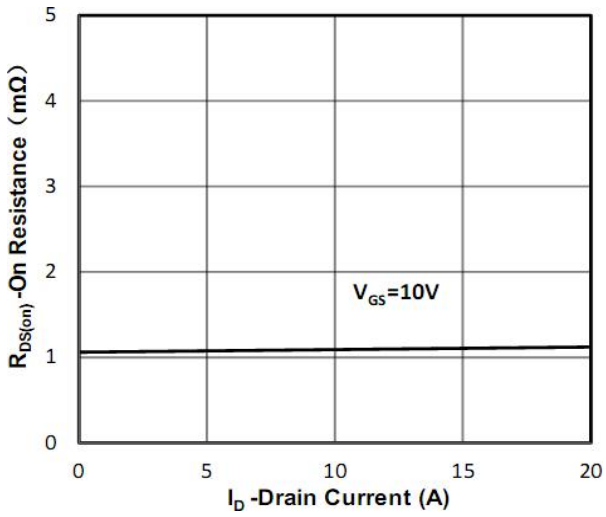


Figure2：$R_{DS(on)}$-Drain Current

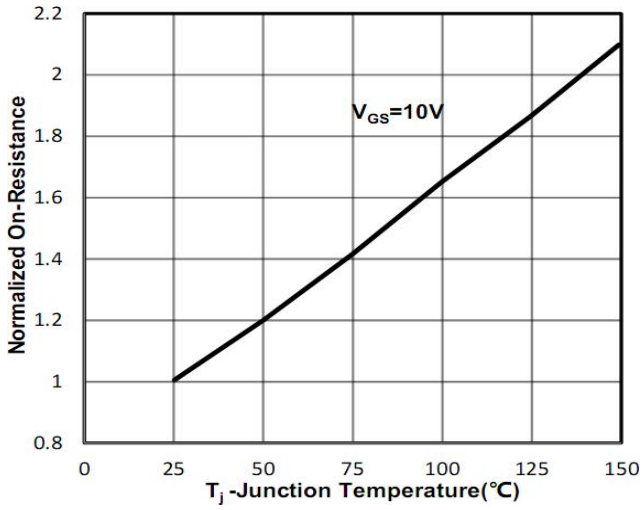


Figure3：$R_{DS(on)}$ -Junction Temperature

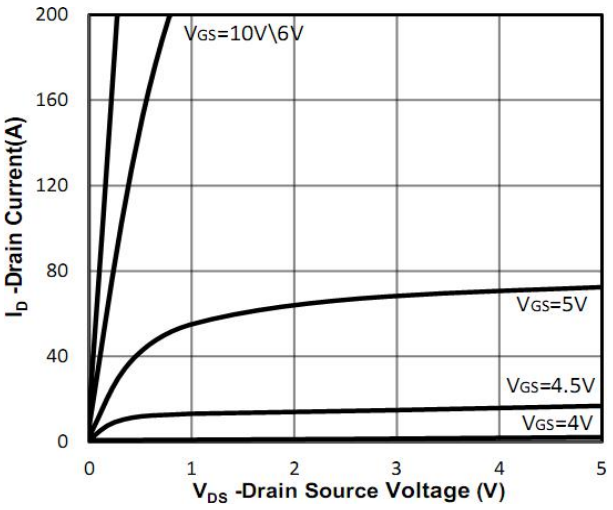


Figure4：Output Characteristics

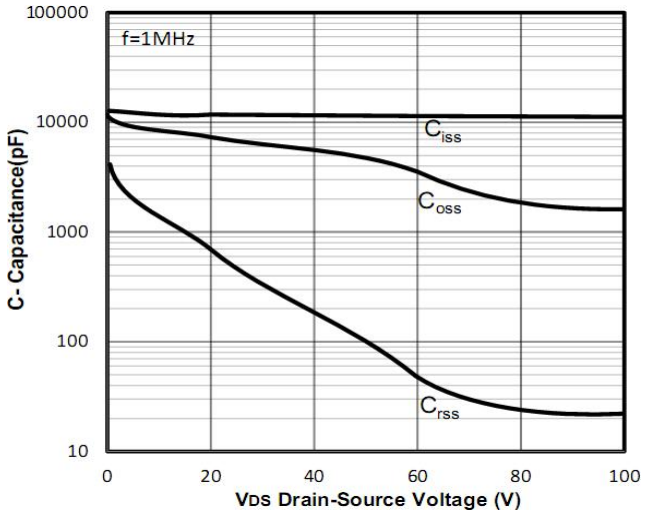


Figure5：Capacitance -V_{DS}

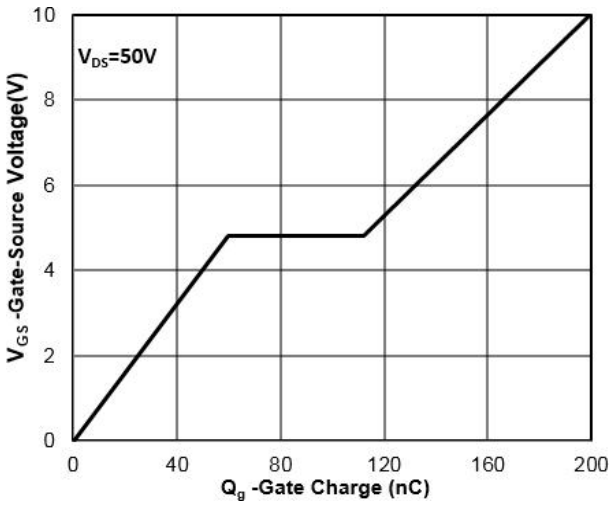


Figure6：Gate Charge

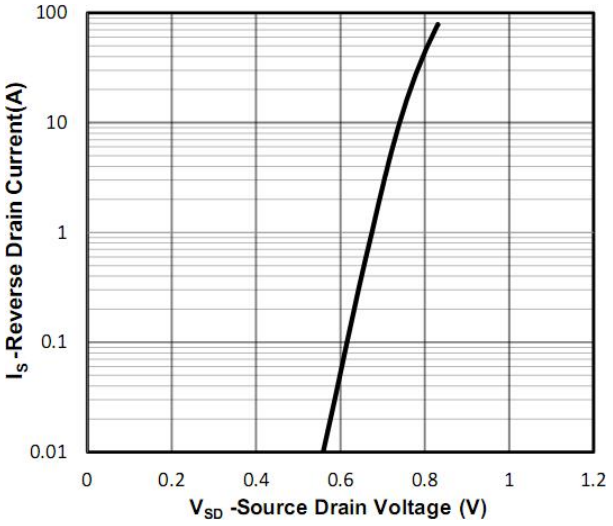


Figure7：Source-Drain Diode Forward

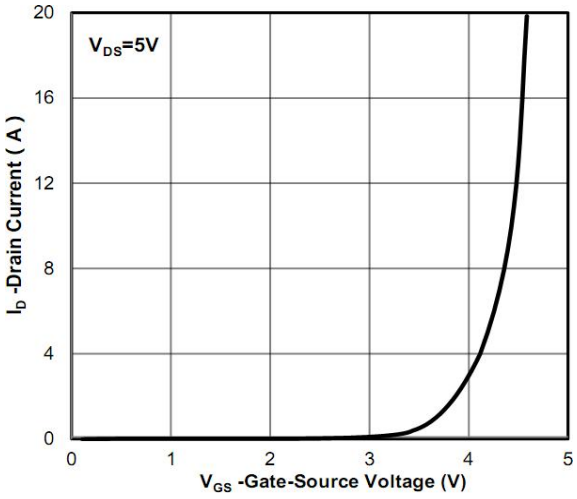


Figure8：Transfer Characteristics

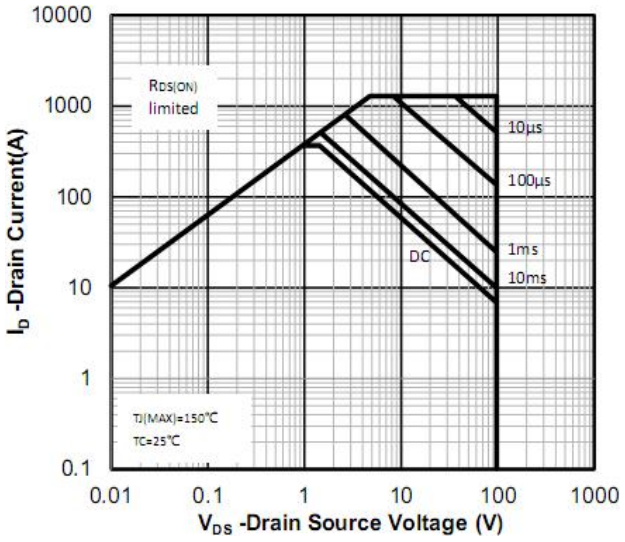


Figure9：Safe Operation Area

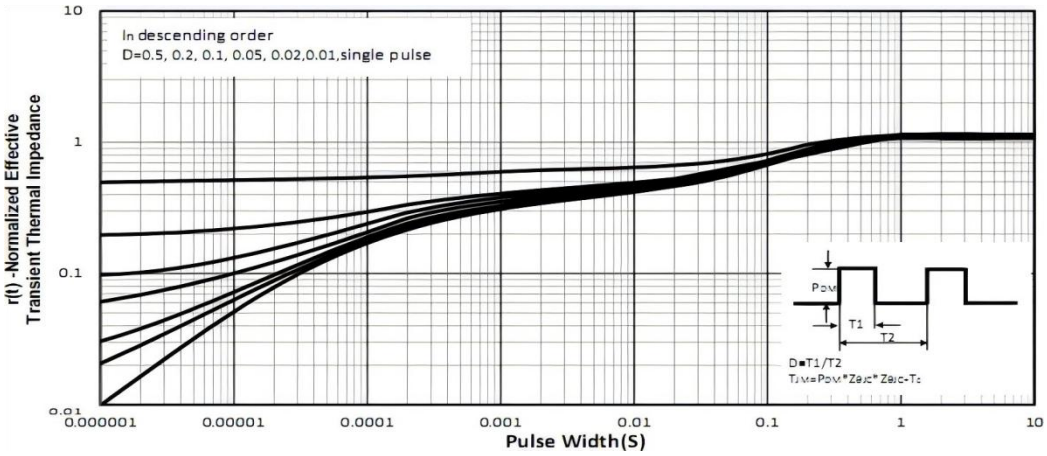
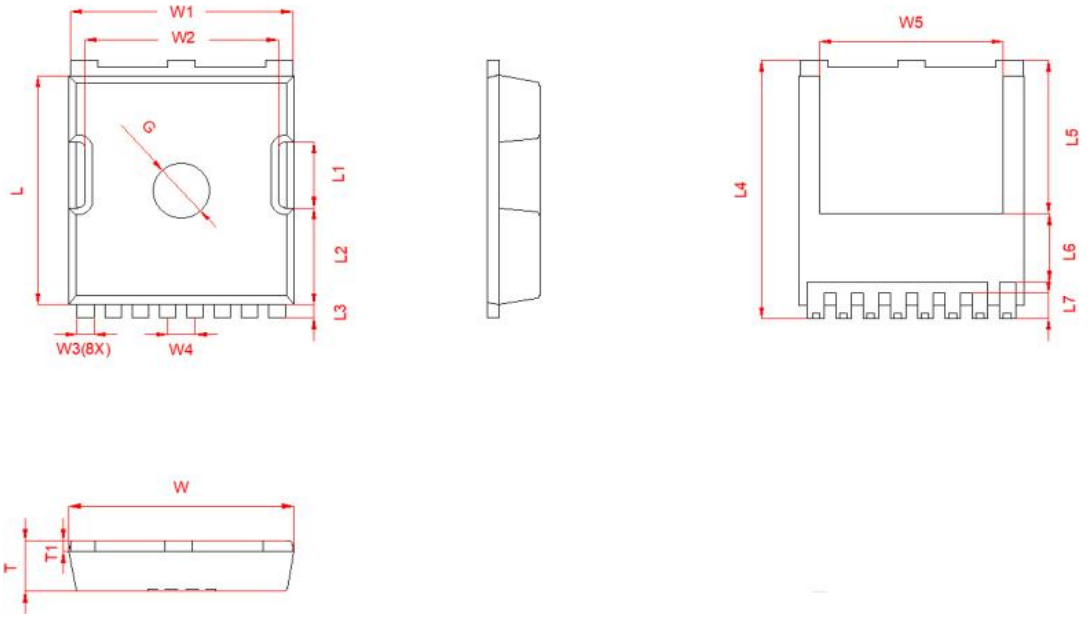


Figure10：Normalized Maximum Transient Thermal Impedance

PACKAGE OUTLINE



Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max
W	9.7	10.1	L	10.28	10.58	L6	(3.1)	
W1	9.7	9.9	L1	(3.0)		L7	1.1	1.3
W2	(8.5)		L2	4.2	4.6	T	2.2	2.4
W3	0.6	0.85	L3	0.5	0.7	T1	0.4	0.6
W4	1.1	1.3	L4	11.48	11.88	G(Φ)	(2.5)	
W5	(8.1)		L5	(6.9)				

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