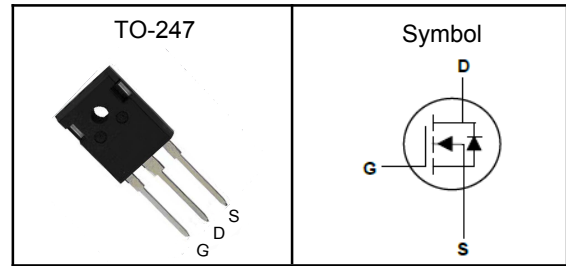


N-Channel Enhancement Mode MOSFET
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	300	V
$R_{DS(ON)-Typ}$	36	m Ω
I_D	70	A

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

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	300	V
V_{GSS}	Gate-Source Voltage	± 30	V
T_J	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
E_{AS}	Single Pulse Avalanche Energy ^③	3450	mJ
$I_{DM}^{①}$	Pulse Drain Current Tested	280	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$ 70	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 250	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ^①	40	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ^①	0.5	$^\circ\text{C/W}$

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	$V_{GS}=0V, I_D=250\mu A$	300	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=300V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	---	4.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	± 10	μA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=35A$	---	36	42	$m\Omega$
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ $Freq.=1MHz$	---	8280	---	pF
C_{oss}	Output Capacitance		---	900	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=150V,$ $V_{GS}=10V,$ $R_G=25\Omega, I_D=70A$	---	82	---	nS
T_r	Turn-on Rise Time		---	300	---	
$T_{d(off)}$	Turn-off Delay Time		---	190	---	
T_f	Turn-off Fall Time		---	135	---	
Q_g	Total Gate Charge	$V_{DD}=240V,$ $V_{GS}=10V, I_D=70A$	---	136	---	nC
Q_{gs}	Gate-Source Charge		---	42	---	
Q_{gd}	Gate-Drain Charge		---	46	---	
Source-Drain Characteristics ($T_J=25^{\circ}\text{C}$)						
V_{SD}	Diode Forward Voltage ₂	$V_{GS}=0V, I_S=70A, T_J=25^{\circ}\text{C}$	---	0.8	1.4	V
t_{rr}	Reverse Recovery Time	$I_F=70A,$ $di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	360	---	nS
Q_{rr}	Reverse Recovery Charge		---	3	---	μC

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

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

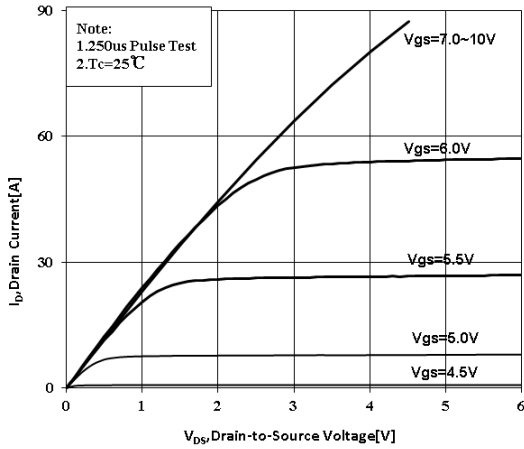
N-Channel Enhancement Mode MOSFET
Typical Characteristics


Figure 1 Typical Output Characteristics

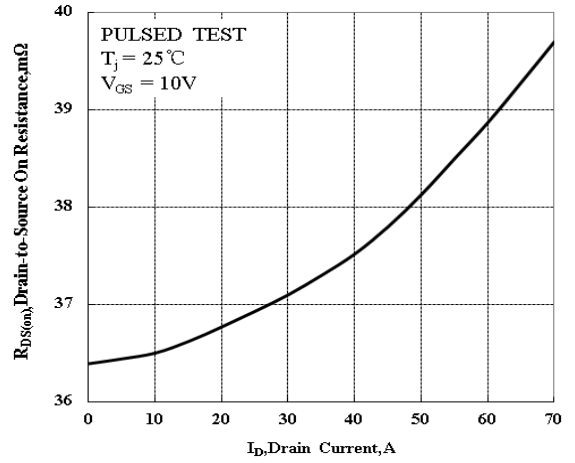


Figure 2 Typical Drain to Source ON Resistance vs Drain Current

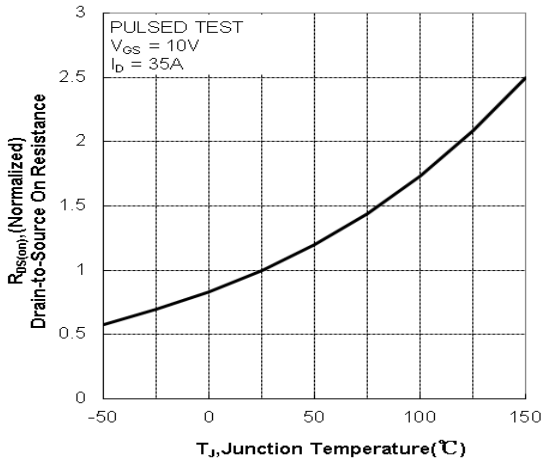


Figure 3 Typical Drain to Source on Resistance vs Junction Temperature

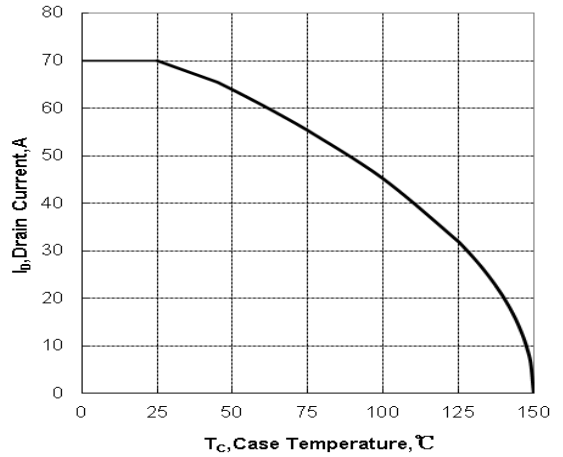


Figure 4 Maximum Continuous Drain Current vs Case Temperature

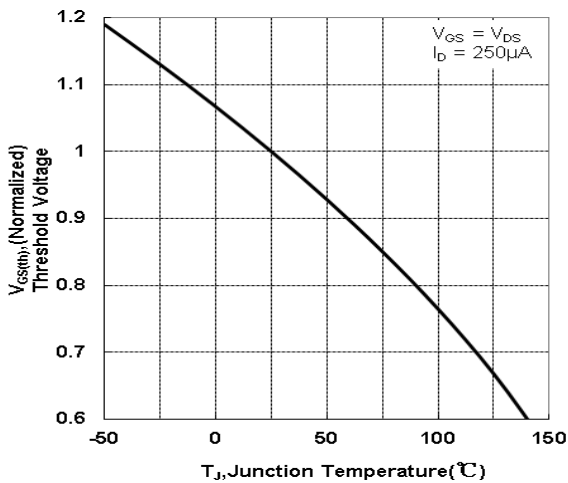


Figure 5 Typical Threshold Voltage vs Junction Temperature

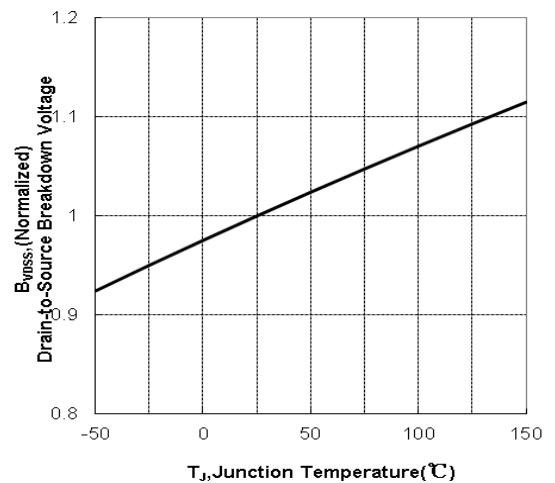


Figure 6 Typical Breakdown Voltage vs Junction Temperature

N-Channel Enhancement Mode MOSFET

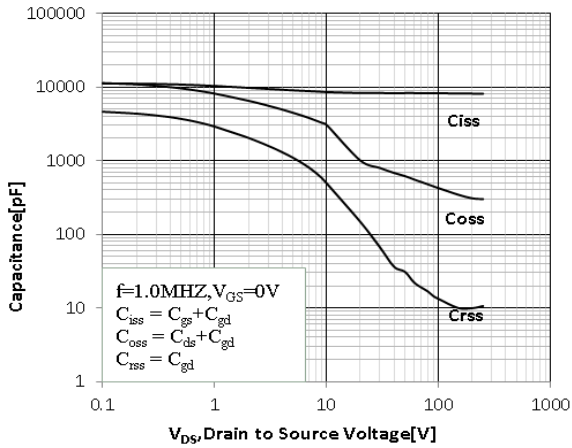


Figure 7 Typical Capacitance vs Drain to Source Voltage

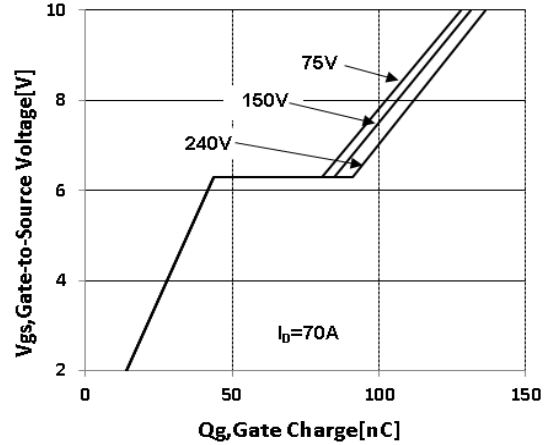


Figure 8 Typical Gate Charge vs Gate to Source Voltage

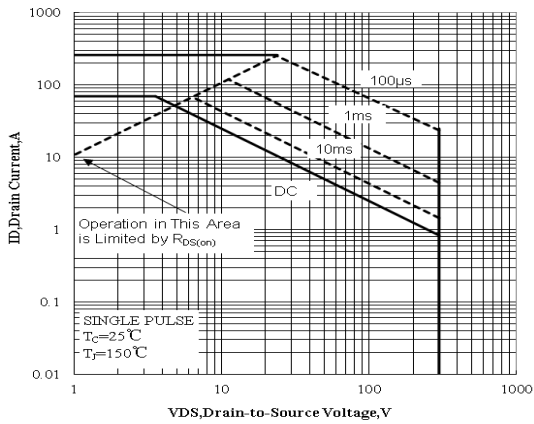


Figure 9 Maximum Forward Bias Safe Operating Area

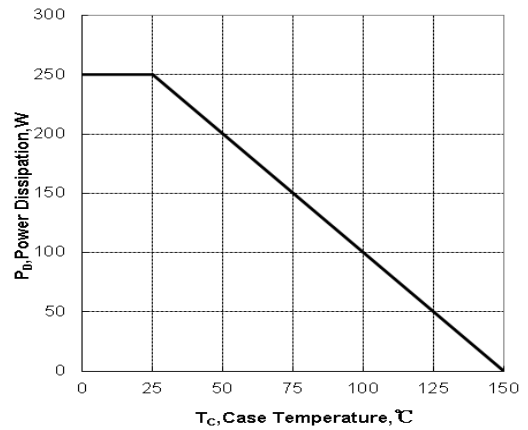


Figure 10 Maximum Power dissipation vs Case Temperature

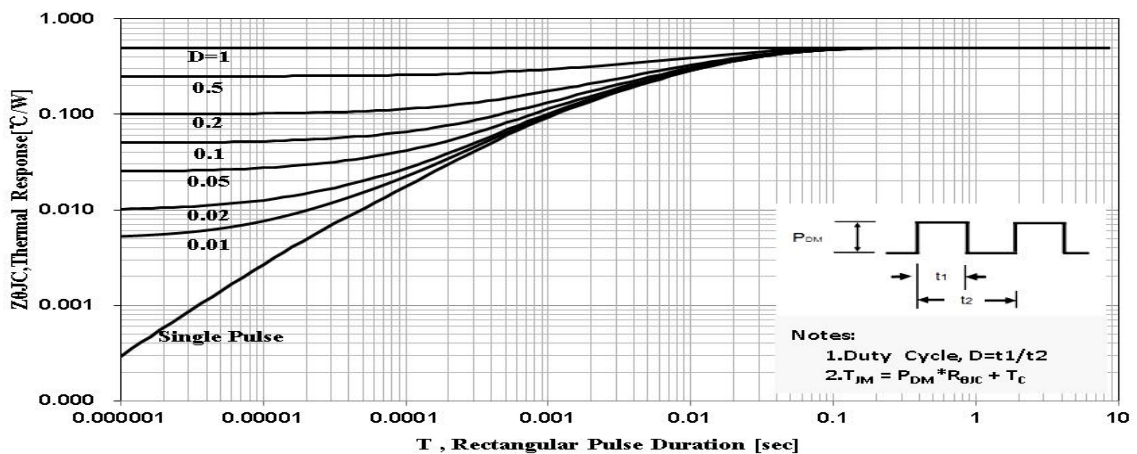
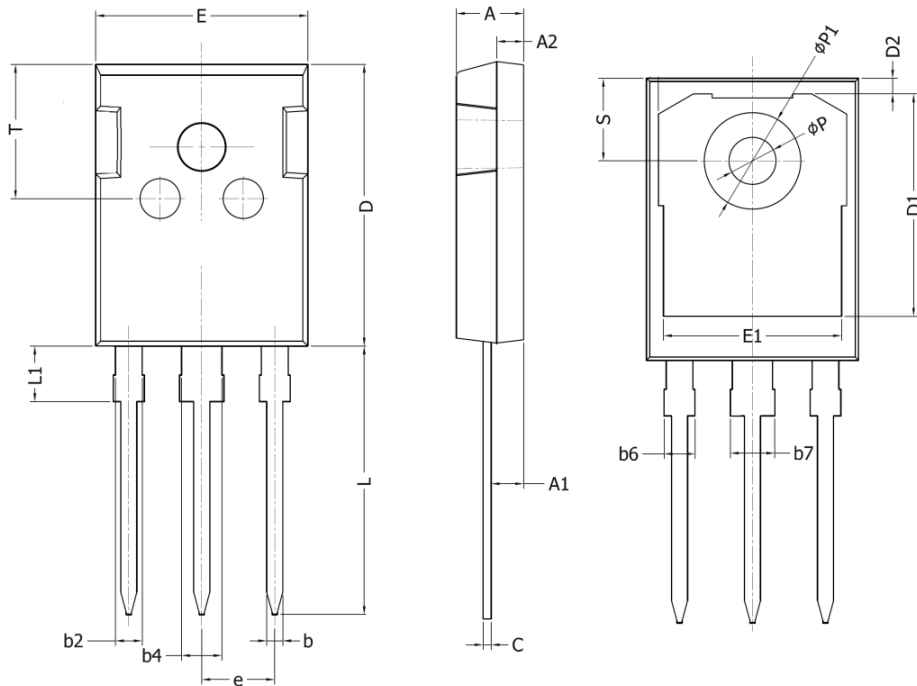


Figure 11 Maximum Effective Thermal Impedance , Junction to Case

N-Channel Enhancement Mode MOSFET
TO-247 Package Outline Dimensions


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	4.90	5.20
A1	2.31	2.51
A2	1.9	2.1
b	1.16	1.26
b2	1.96	2.06
b4	2.96	3.06
b6	-	2.25
b7	-	3.25
C	0.59	0.66
D	20.90	21.20
D1	16.25	16.85
D2	1.05	1.35
E	15.75	16.10
E1	13.00	13.60
e	5.436 BSC	
L	19.80	20.20
L1	-	4.30
P	3.40	3.60
P1	7.00	7.40
S	6.05	6.25
T	9.80	10.20