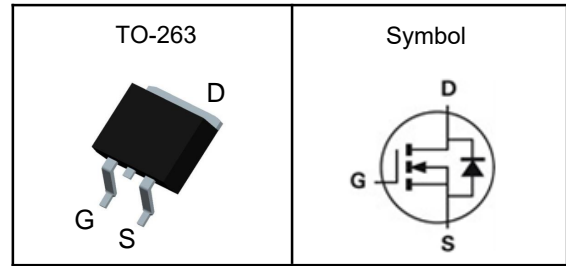


N-Channel Enhancement Mode MOSFET
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	110	V
$R_{DS(ON)-Typ}$	3.8	m Ω
I_D	150	A

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

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	110	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	$^{\circ}C$
$I_{DM}^{①}$	Pulse Drain Current Tested	450	A
I_D	Continuous Drain Current	150	A
P_D	Maximum Power Dissipation	180	W
E_{AS}	Avalanche Energy, Single pulse	266	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.7	$^{\circ}C/W$

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 1in² FR-4 board with 1oz.



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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	$V_{GS}=0V, I_D=250\mu A$	110	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	---	4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=30A$	---	3.8	4.2	m Ω
Dynamic Characteristics ^⑤						
gfs	Forward Transconductance	$V_{DS}=5V, I_D=20A$	---	80	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	---	2.5	---	Ω
C_{iss}	Input Capacitance	$V_{DS}=50V, V_{GS}=0V, Freq.=1MHz$	---	4240	---	pF
C_{oss}	Output Capacitance		---	605	---	
C_{rss}	Reverse Transfer Capacitance		---	40	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DS}=50V, V_{GS}=10V, I_D=30A, R_G=1.6\Omega$	---	18	---	nS
T_r	Turn-on Rise Time		---	71	---	
$T_{d(off)}$	Turn-off Delay Time		---	53	---	
T_f	Turn-off Fall Time		---	80	---	
Q_g	Total Gate Charge	$V_{DS}=50V, V_{GS}=10V, I_D=30A$	---	105	---	nC
Q_{gs}	Gate-Source Charge		---	21	---	
Q_{gd}	Gate-Drain Charge		---	23	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=30A, V_{GS}=0V$	---	---	1.3	V
t_{rr}	Reverse Recovery Time	$I_F=30A, V_{GS}=0V, di_F/dt=100A/\mu s$	---	75	---	nS
Q_{rr}	Reverse Recovery Charge		---	126	---	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

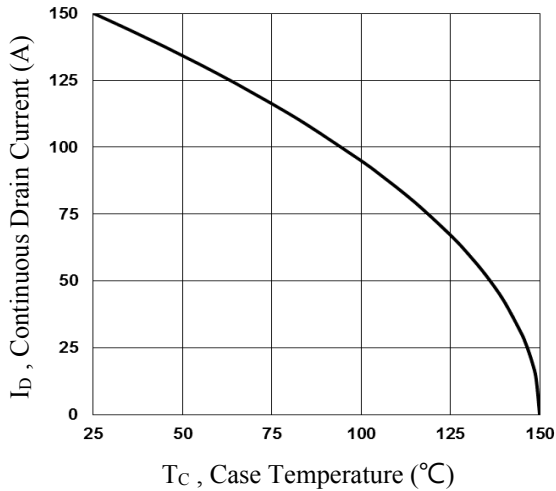


Fig.1 Continuous Drain Current vs. T_C

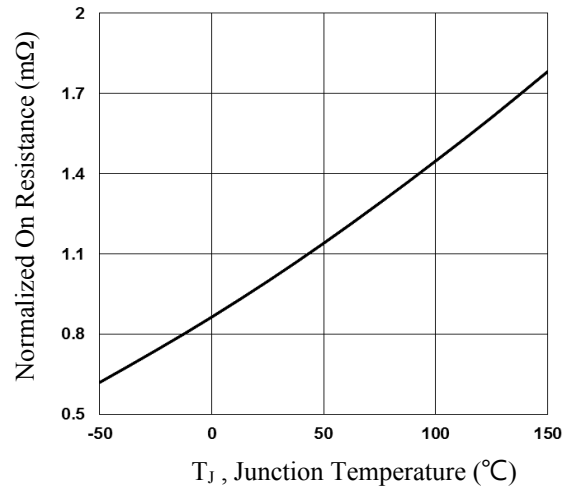


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

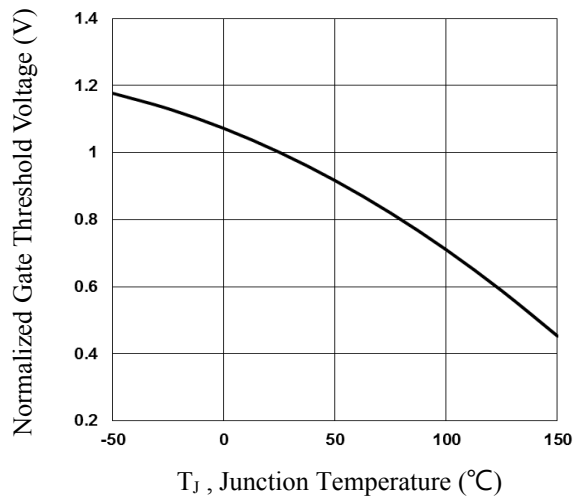


Fig.3 Normalized V_{th} vs. T_J

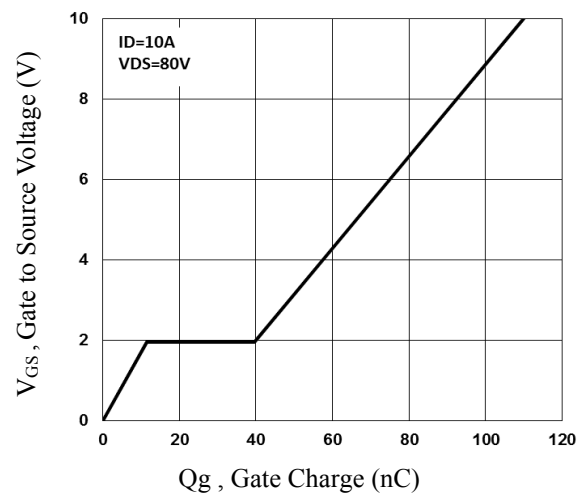


Fig.4 Gate Charge Characteristics

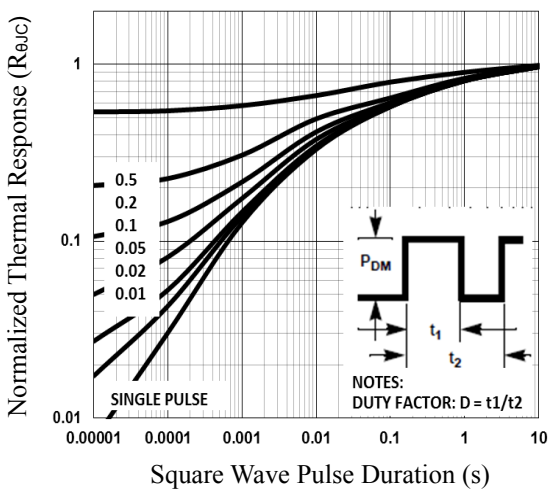


Fig.5 Normalized Transient Impedance

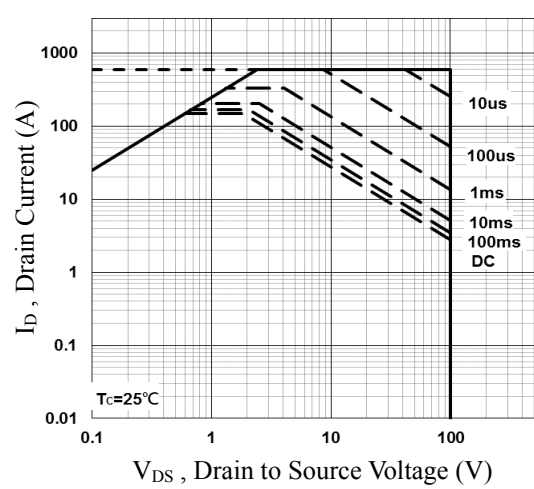
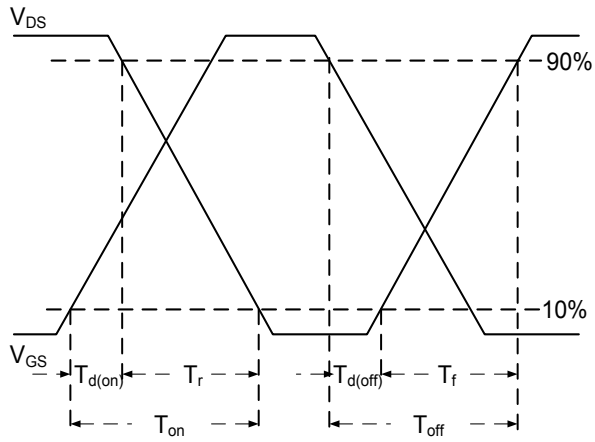
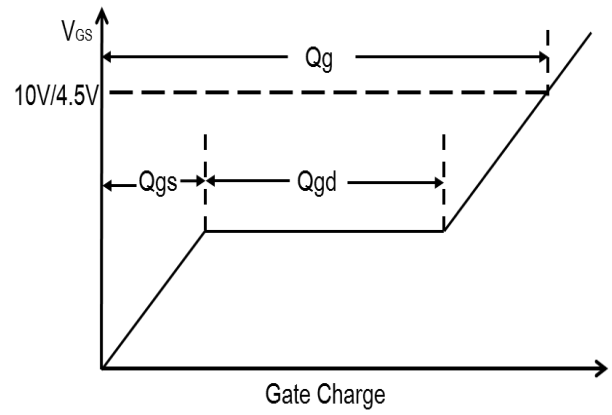


Fig.6 Maximum Safe Operation Area

N-Channel Enhancement Mode MOSFET

Fig.7 Switching Time Waveform

Fig.8 Gate Charge Waveform

N-Channel Enhancement Mode MOSFET
TO-263 Package Outline Data
