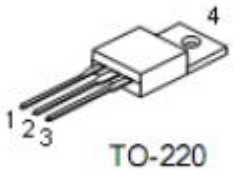
1. Features

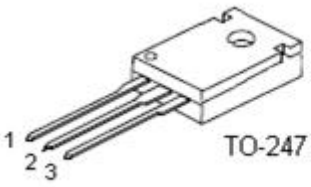
- $R_{DS(on)}$=3.5mΩ（typ.）@ V_{GS}=10V
- 100% avalanche tested
- Reliable and rugged
- Lead free and green device available（RoHS Compliant）

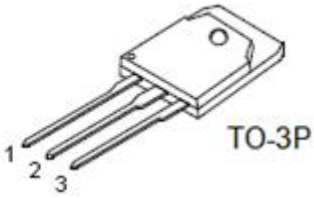
2. Applications

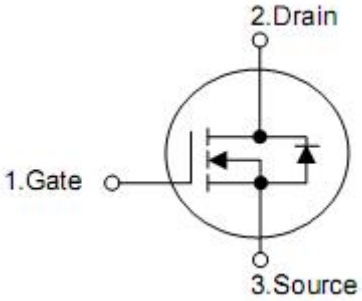
- Switching application
- Power management for inverter systems
- UPS

3.Symbol









Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

4. Absolute maximum ratings

(T_A=25°C,unless otherwise noted)

Parameter		Symbol	Rating	Units
Drain-source voltage		V_{DSS}	60	V
Gate-source voltage		V_{GSS}	±25	V
Maximum junction temperature		T_J	175	ºC
Storage temperature range		T_{STG}	-55 to175	ºC
Diode continuous forward current	T_C=25ºC	I_S	160	A
Continuous drain current	T_C=25ºC	I_D[3]	160	A
	T_C=100ºC		105	A
Pulse drain current*	T_C=25ºC	I_{DM}[4]	580	A
Avalanche energy,single pulsed	L=0.5mH	E_{AS}[5]	400	mJ
Maximum power dissipation	T_C=25 ºC	P_D	185	W
	T_C=100ºC		92.5	W

5. Thermal characteristics

Parameter	Symbol	Rating	Unit
Thermal resistance,Junction-ambient	$R_{\theta JA}$	62.5	ºC/W
Thermal resistance,Junction-case	$R_{\theta JC}$	0.81	ºC/W

6. Electrical characteristics

(T_A=25°C,unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	60	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=48V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	10	
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	3.0	4.0	V
Gate leakage current	I_{GSS}	V_{GS}=±25V, V_{DS}=0V	-	-	±100	nA
Drain-source on-state resistance	$R_{DS(on)}$[1]	V_{GS}=10V,I_D=60A	-	3.5	4.5	mΩ
Gate resistance	R_g	V_{DS}=0V, V_{GS}=0V,f=1MHz	-	0.7	-	Ω
Diode forward voltage	V_{SD}[1]	I_{SD}=60A, V_{GS}=0V	-	0.8	1.2	V
Reverse recovery time[2]	t_{rr}	I_F=60A ,V_{DD}=50V	-	30	-	nS
Reverse recovery charge[2]	Q_{rr}	dI_{SD}/dt=100A/μs	-	50	-	nC
Input capacitance[2]	C_{iss}	V_{DS}=25V,V_{GS}=0V,	-	4376	-	pF
Output capacitance[2]	C_{oss}	f=1MHz	-	857	-	
Reverse transfer capacitance[2]	C_{rss}		-	334	-	
Turn-on delay time[2]	$t_{d(on)}$	V_{DD}=30V, I_{DS}=60A,	-	28	-	ns
Rise time[2]	t_r	R_G=25Ω,V_{GS}=10V	-	18	-	
Turn-off delay time[2]	$t_{d(off)}$		-	42	-	
Fall time[2]	t_f		-	54	-	
Total gate charge[2]	Q_g	V_{DS}=48V, V_{GS}=10V	-	130	-	nC
Gate-source charge[2]	Q_{gs}	I_{DS}=60A	-	24	--	
Gate-drain charge[2]	Q_{gd}		-	47	--	

Note:1:Pulse test;pulse width≤300us duty cycle≤2%.

2.Guaranteed by design,not subject to production testing.

3.Package limitation current is 75A,Calculated continuous current based on maximum allowable junction temperature.

4:Repetitive rating,pulse width limited by junction temperature.

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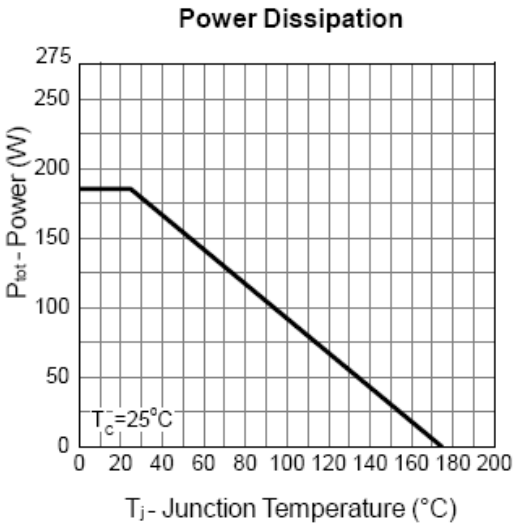
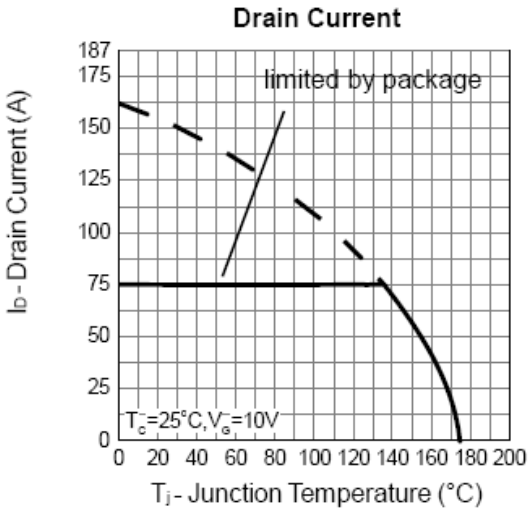
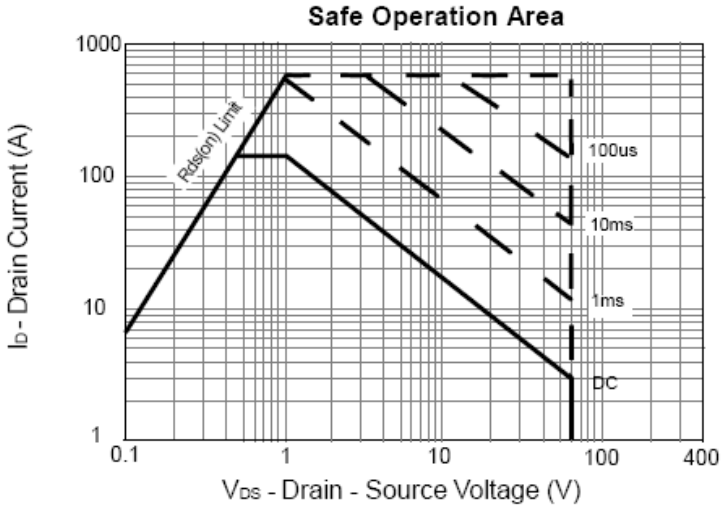
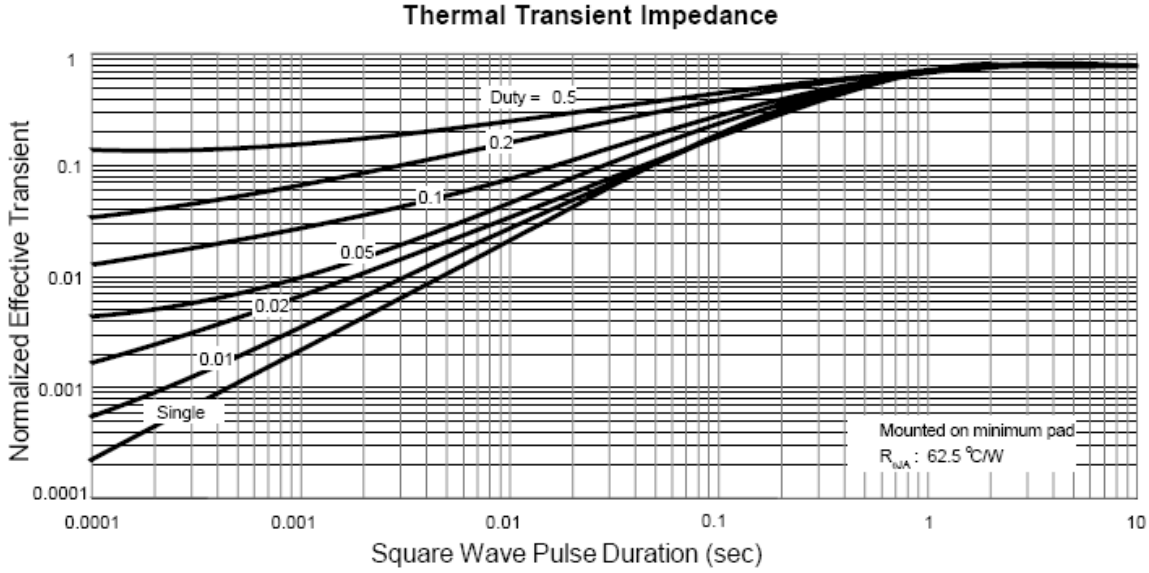
7. Test circuits and waveforms

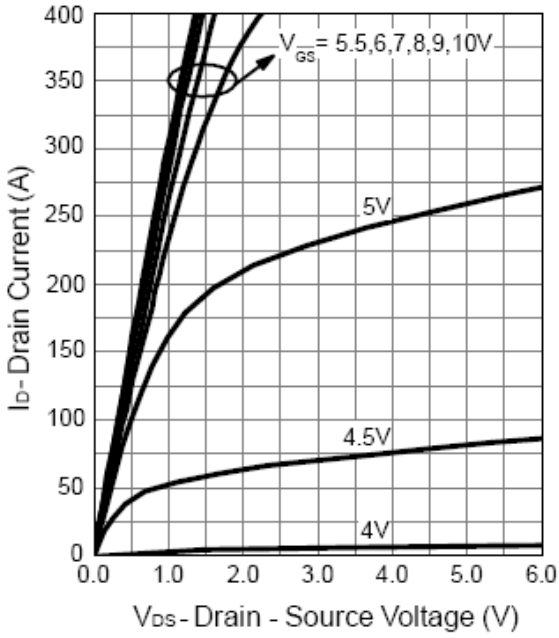




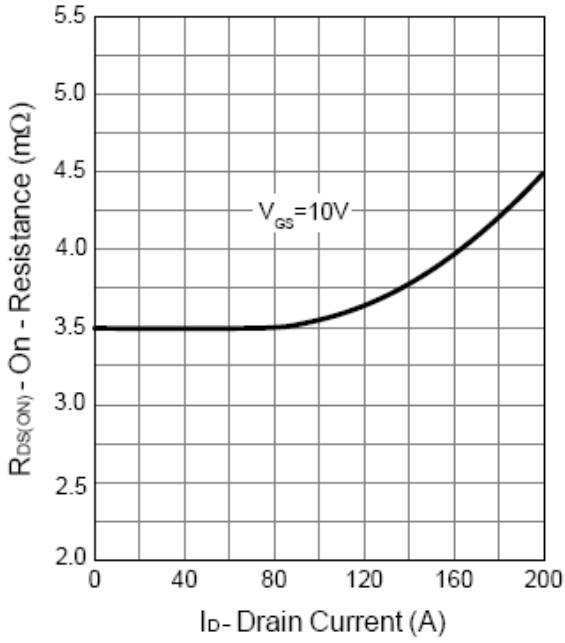




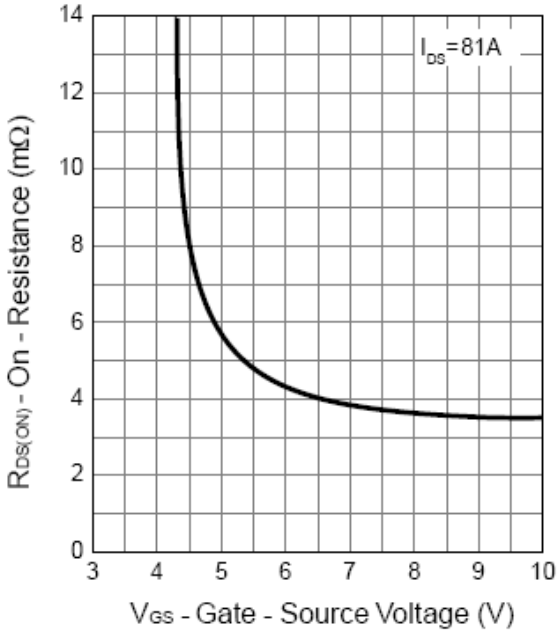
Output Characteristics



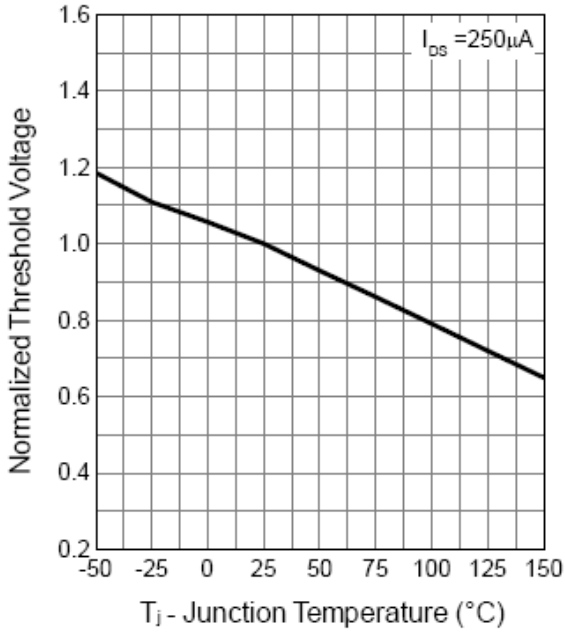
Drain-Source On Resistance



Gate-Source On Resistance



Gate Threshold Voltage



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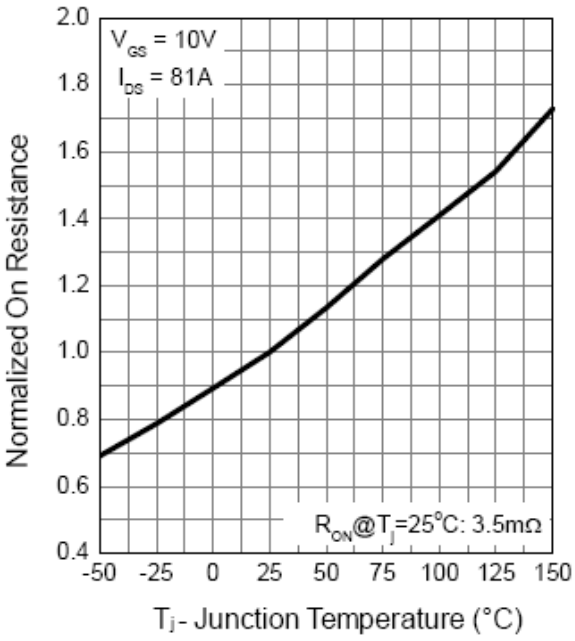
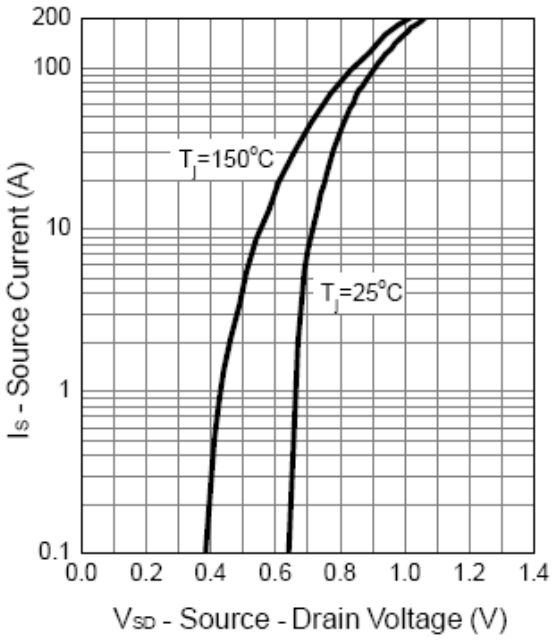
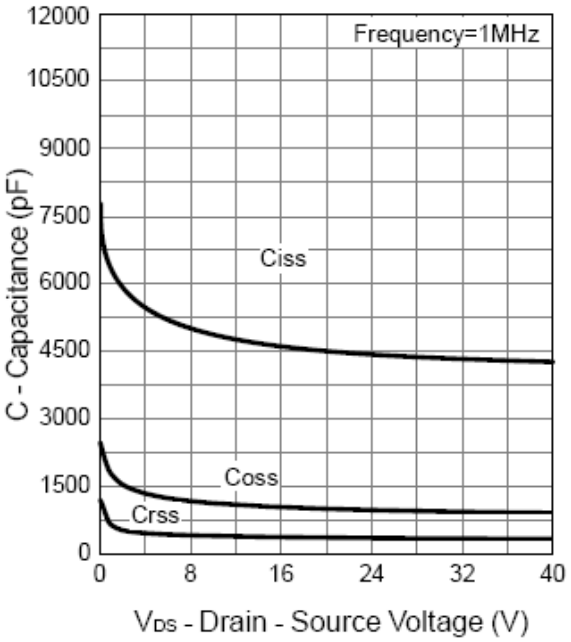


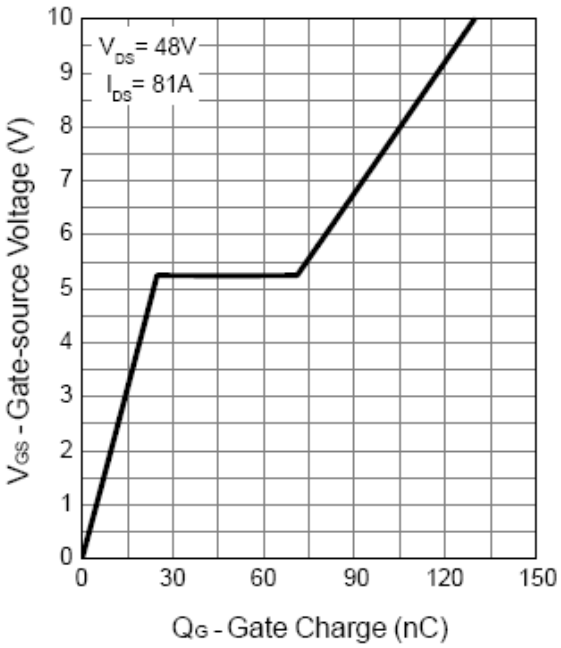
Source-Drain Diode Forward



Capacitance



Gate Charge



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- UPS

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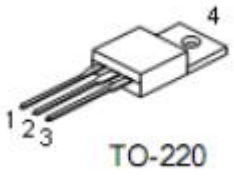

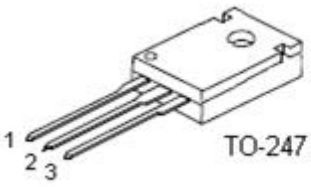

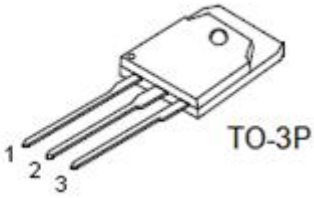

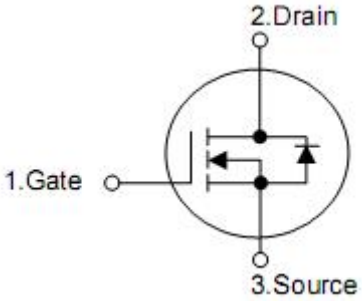

Pin	Function
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2	Drain
3	Source
4	Drain

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(T_A=25°C,unless otherwise noted)

Parameter		Symbol	Rating	Units
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Gate-source voltage		V_{GSS}	±25	V
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Diode continuous forward current	T_C=25ºC	I_S	160	A
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Avalanche energy,single pulsed	L=0.5mH	E_{AS}[5]	400	mJ
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Parameter	Symbol	Rating	Unit
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Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	60	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=48V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	10	
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	3.0	4.0	V
Gate leakage current	I_{GSS}	V_{GS}=±25V, V_{DS}=0V	-	-	±100	nA
Drain-source on-state resistance	$R_{DS(on)}$[1]	V_{GS}=10V,I_D=60A	-	3.5	4.5	mΩ
Gate resistance	R_g	V_{DS}=0V, V_{GS}=0V,f=1MHz	-	0.7	-	Ω
Diode forward voltage	V_{SD}[1]	I_{SD}=60A, V_{GS}=0V	-	0.8	1.2	V
Reverse recovery time[2]	t_{rr}	I_F=60A ,V_{DD}=50V	-	30	-	nS
Reverse recovery charge[2]	Q_{rr}	dI_{SD}/dt=100A/μs	-	50	-	nC
Input capacitance[2]	C_{iss}	V_{DS}=25V,V_{GS}=0V,	-	4376	-	pF
Output capacitance[2]	C_{oss}	f=1MHz	-	857	-	
Reverse transfer capacitance[2]	C_{rss}		-	334	-	
Turn-on delay time[2]	$t_{d(on)}$	V_{DD}=30V, I_{DS}=60A,	-	28	-	ns
Rise time[2]	t_r	R_G=25Ω,V_{GS}=10V	-	18	-	
Turn-off delay time[2]	$t_{d(off)}$		-	42	-	
Fall time[2]	t_f		-	54	-	
Total gate charge[2]	Q_g	V_{DS}=48V, V_{GS}=10V	-	130	-	nC
Gate-source charge[2]	Q_{gs}	I_{DS}=60A	-	24	--	
Gate-drain charge[2]	Q_{gd}		-	47	--	

Note:1:Pulse test;pulse width≤300us duty cycle≤2%.

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3.Package limitation current is 75A,Calculated continuous current based on maximum allowable junction temperature.

4:Repetitive rating,pulse width limited by junction temperature.

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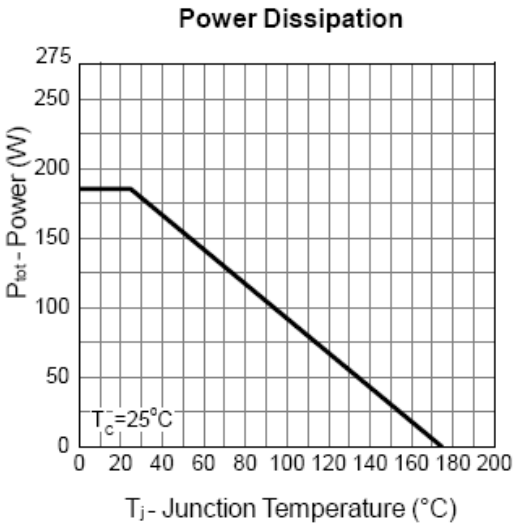
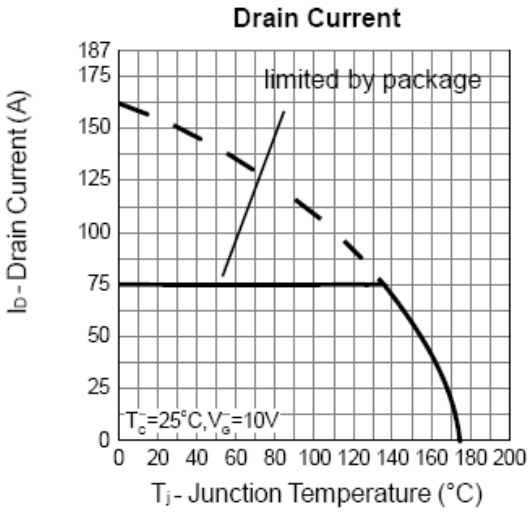
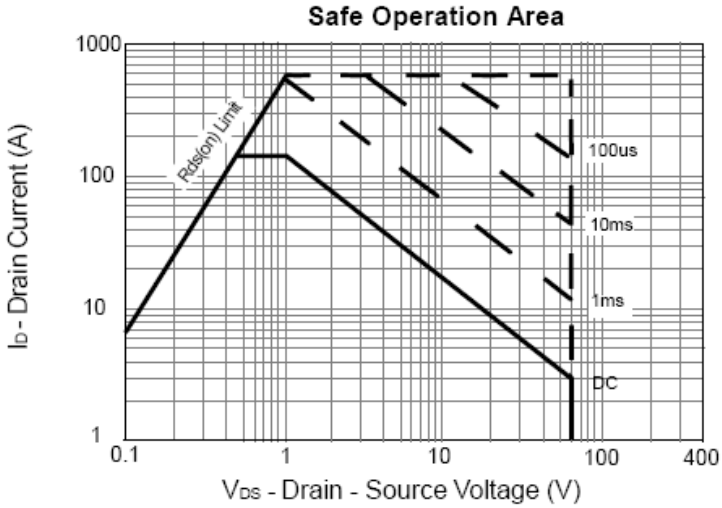
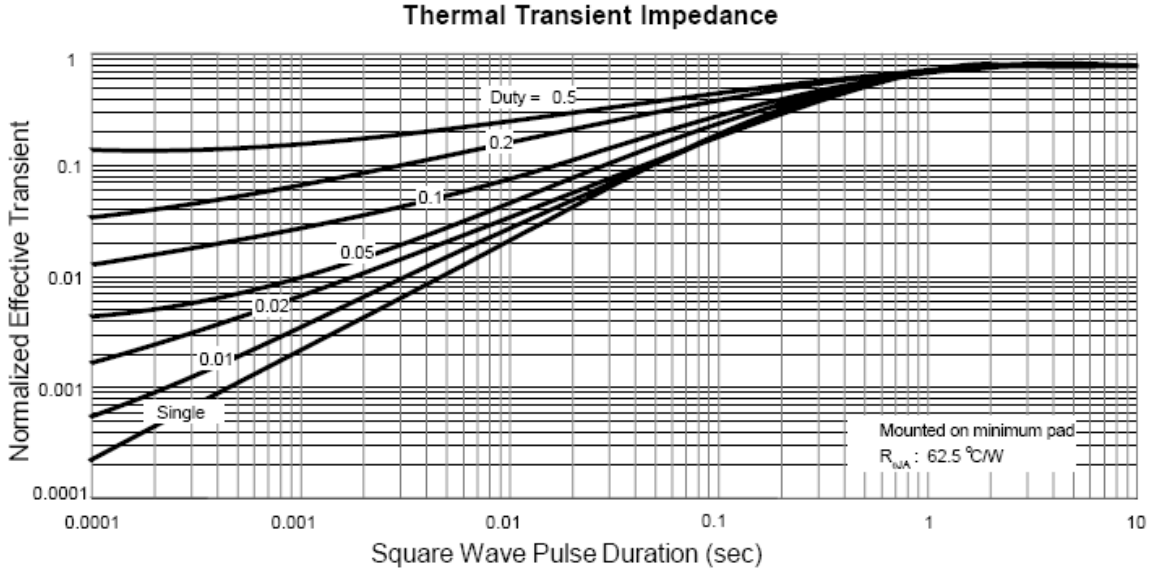
7. Test circuits and waveforms

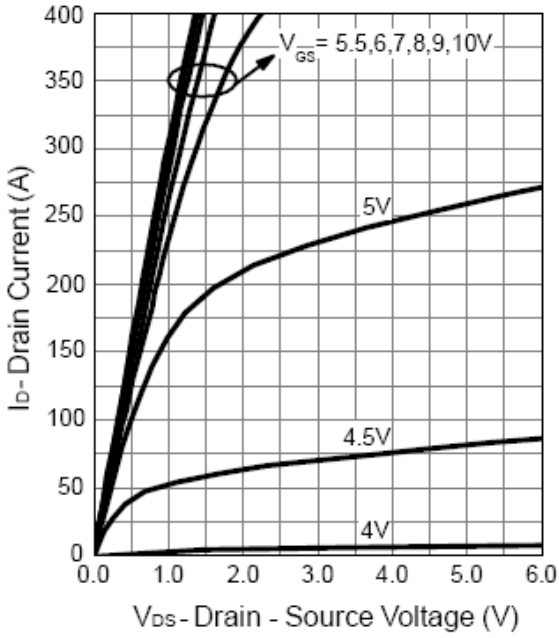




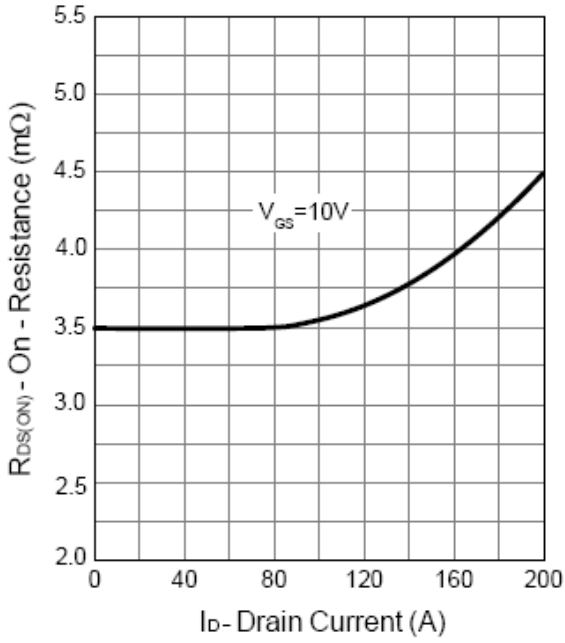




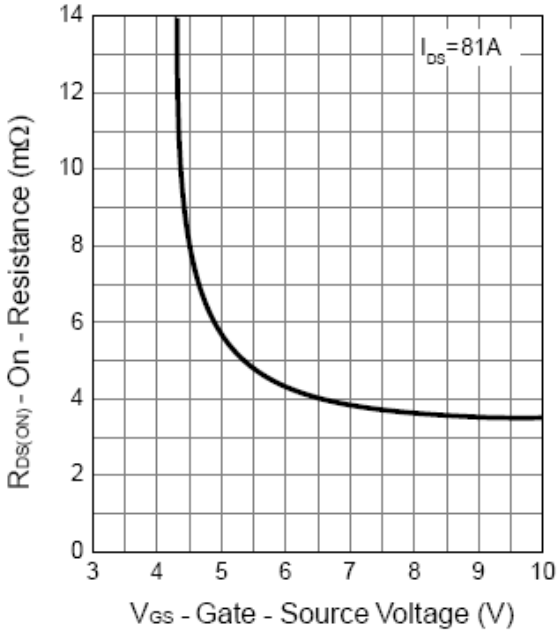
Output Characteristics



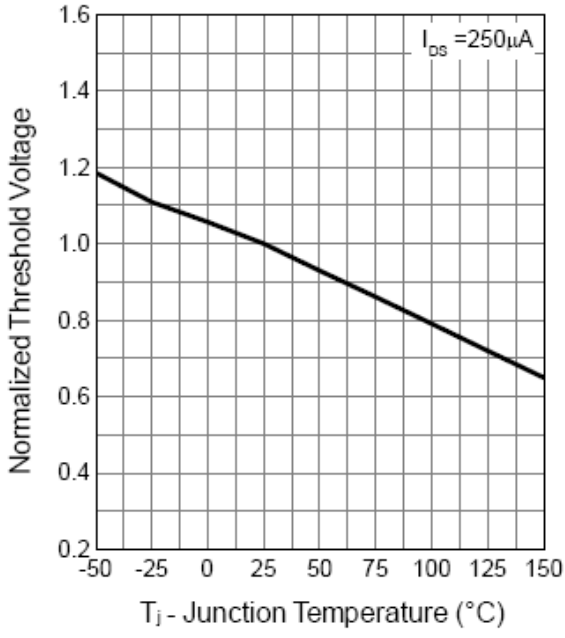
Drain-Source On Resistance



Gate-Source On Resistance



Gate Threshold Voltage



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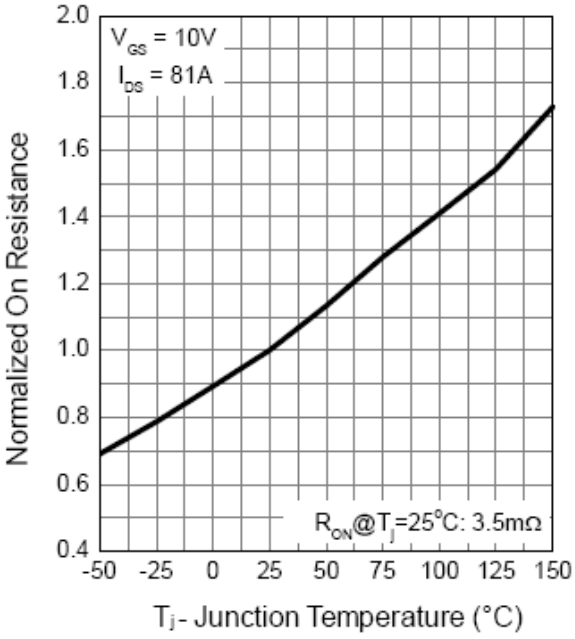
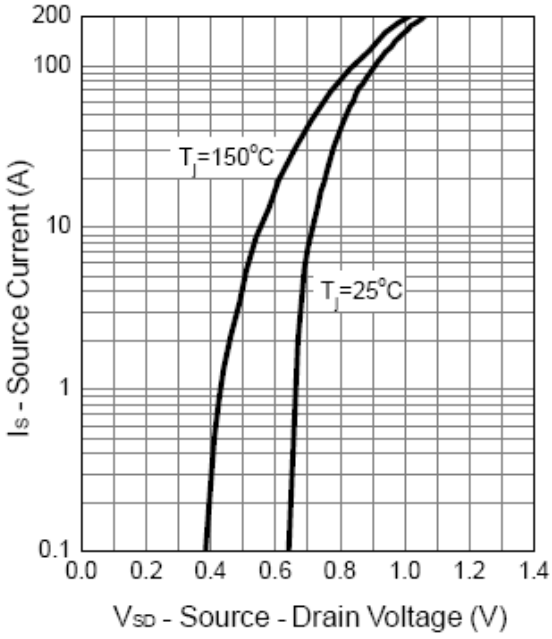
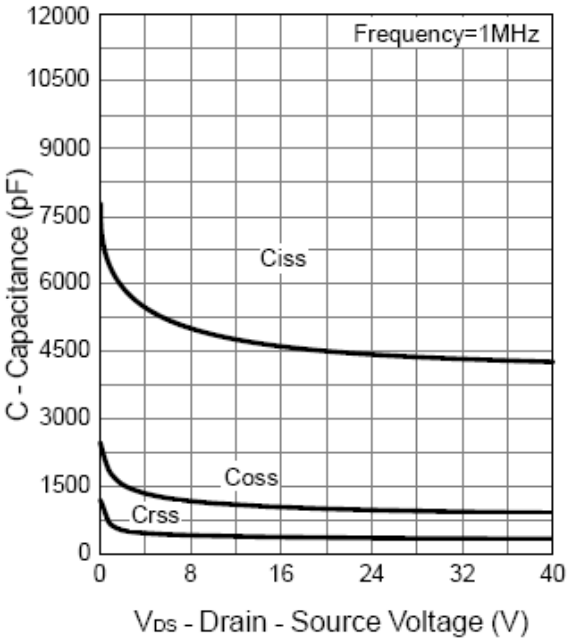


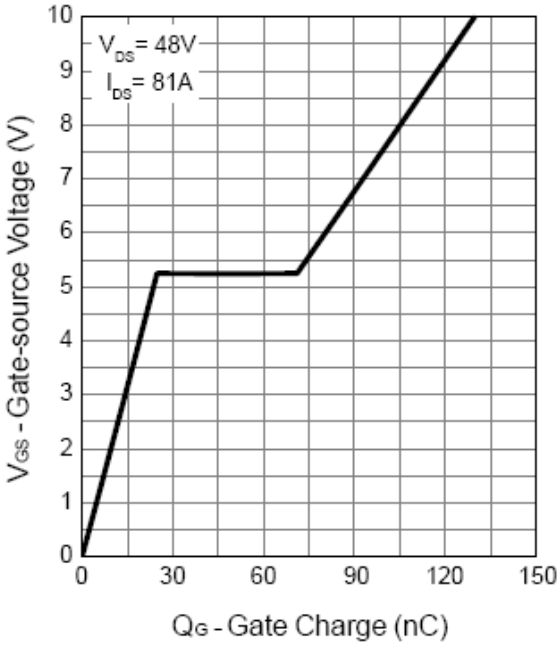
Source-Drain Diode Forward



Capacitance



Gate Charge



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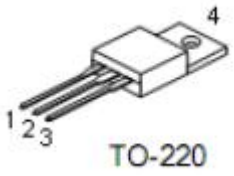

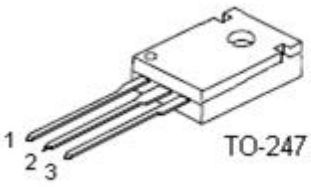

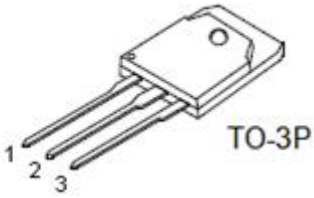

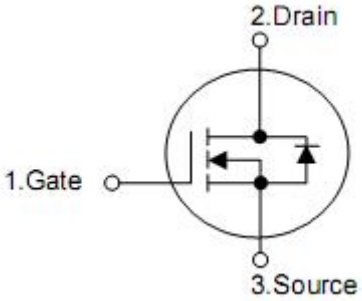

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Input capacitance[2]	C_{iss}	V_{DS}=25V,V_{GS}=0V,	-	4376	-	pF
Output capacitance[2]	C_{oss}	f=1MHz	-	857	-	
Reverse transfer capacitance[2]	C_{rss}		-	334	-	
Turn-on delay time[2]	$t_{d(on)}$	V_{DD}=30V, I_{DS}=60A,	-	28	-	ns
Rise time[2]	t_r	R_G=25Ω,V_{GS}=10V	-	18	-	
Turn-off delay time[2]	$t_{d(off)}$		-	42	-	
Fall time[2]	t_f		-	54	-	
Total gate charge[2]	Q_g	V_{DS}=48V, V_{GS}=10V	-	130	-	nC
Gate-source charge[2]	Q_{gs}	I_{DS}=60A	-	24	--	
Gate-drain charge[2]	Q_{gd}		-	47	--	

Note:1:Pulse test;pulse width≤300us duty cycle≤2%.

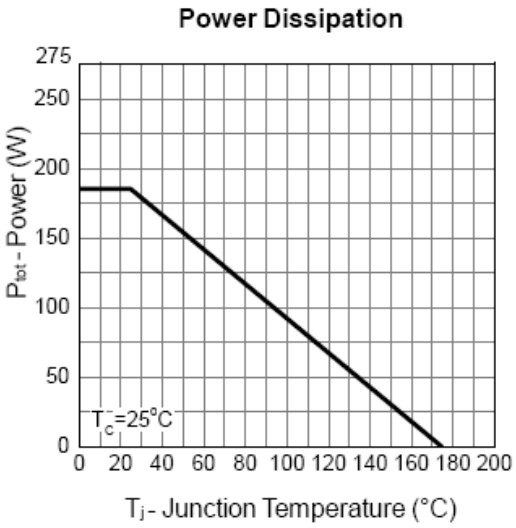
2.Guaranteed by design,not subject to production testing.

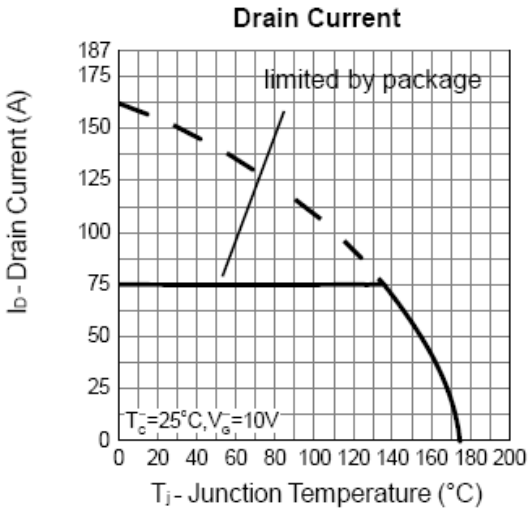
3.Package limitation current is 75A,Calculated continuous current based on maximum allowable junction temperature.

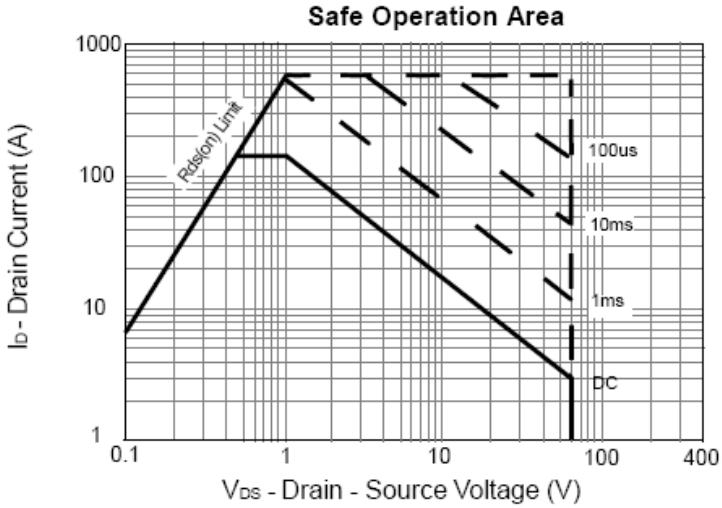
4:Repetitive rating,pulse width limited by junction temperature.

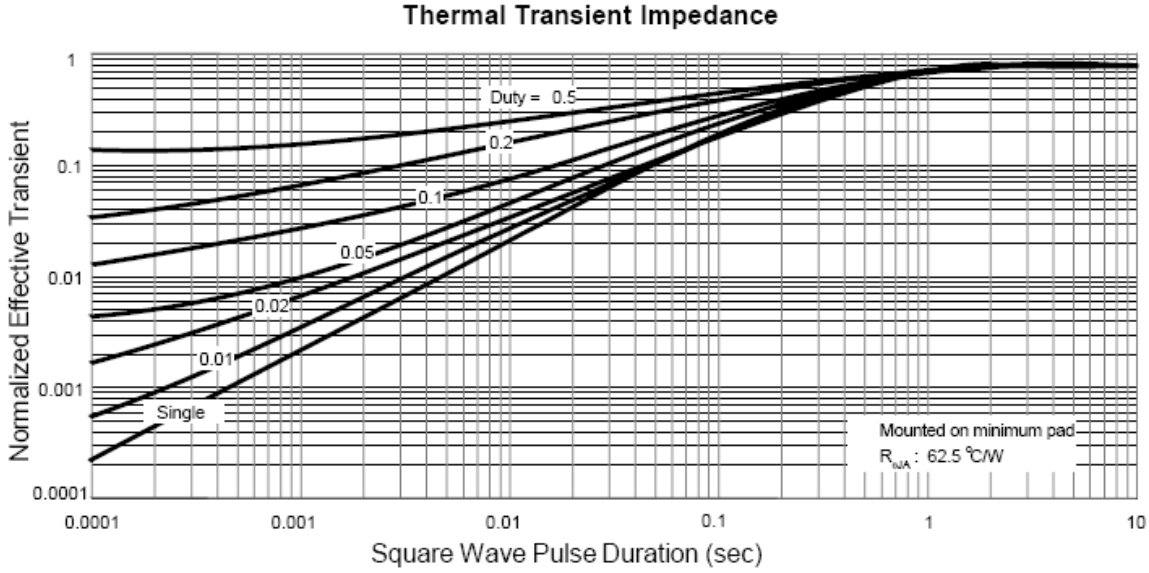
5:Starting TJ=25ºC,L=0.5mH.

7. Test circuits and waveforms

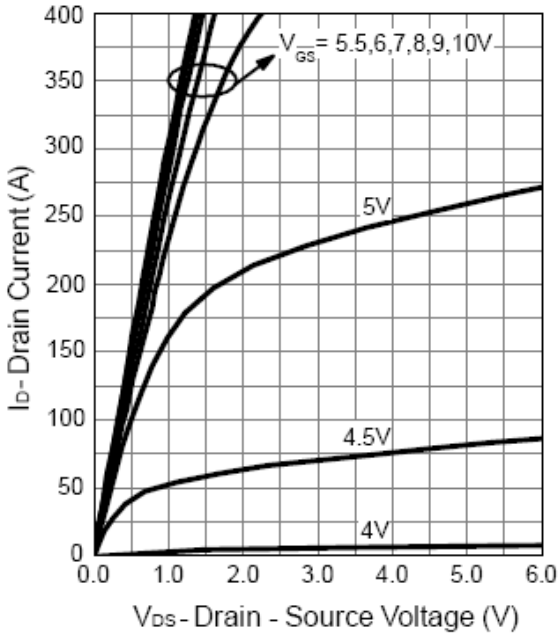




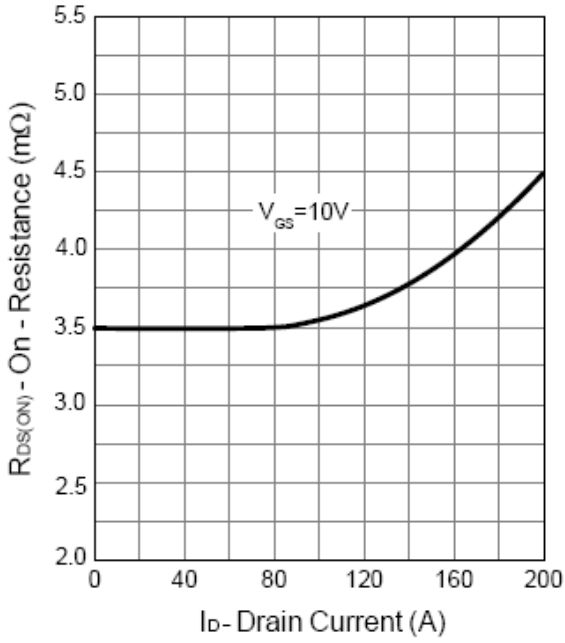




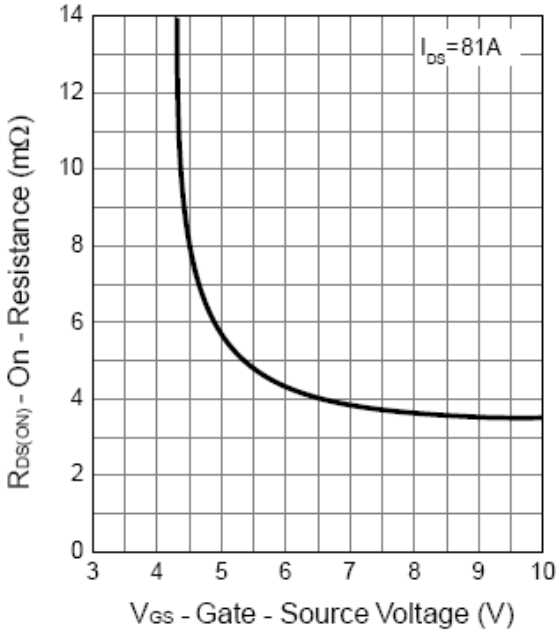
Output Characteristics



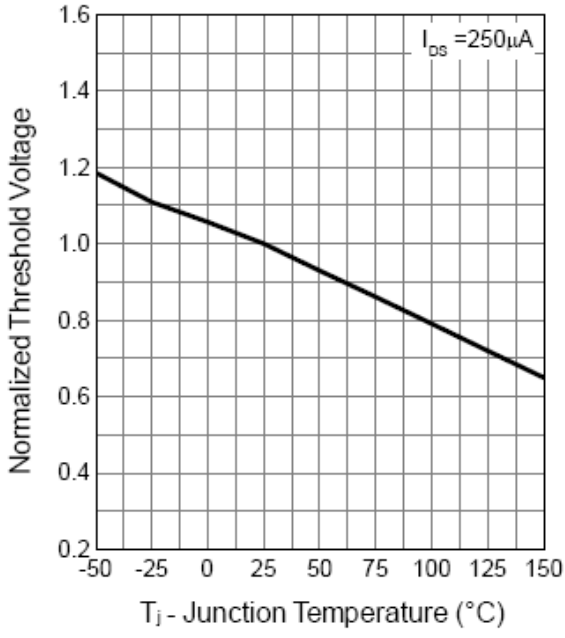
Drain-Source On Resistance



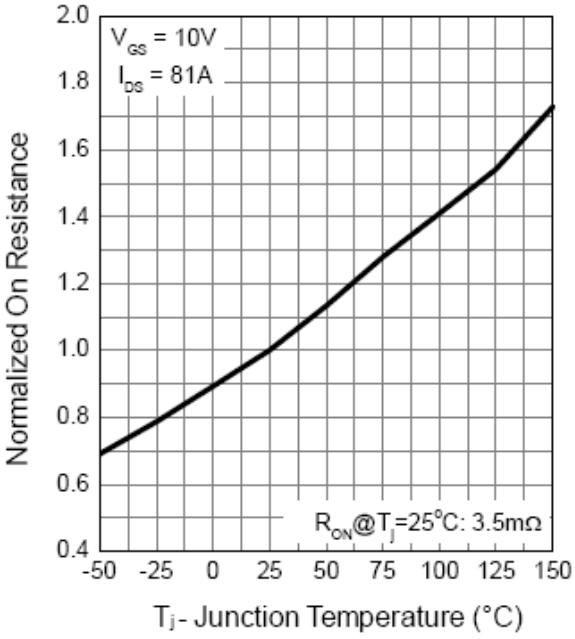
Gate-Source On Resistance



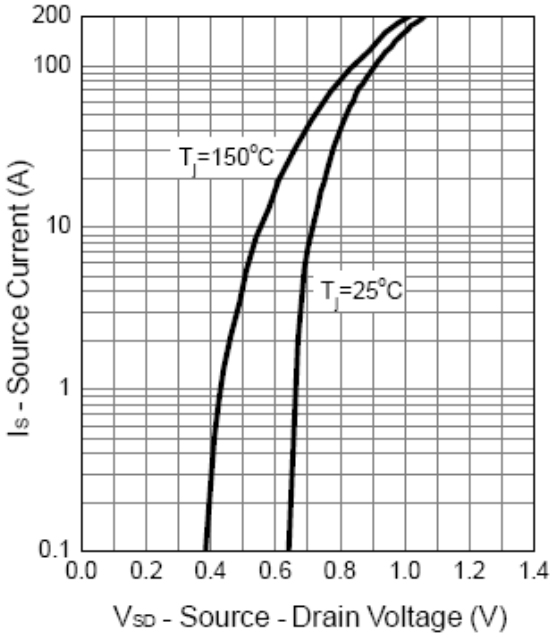
Gate Threshold Voltage



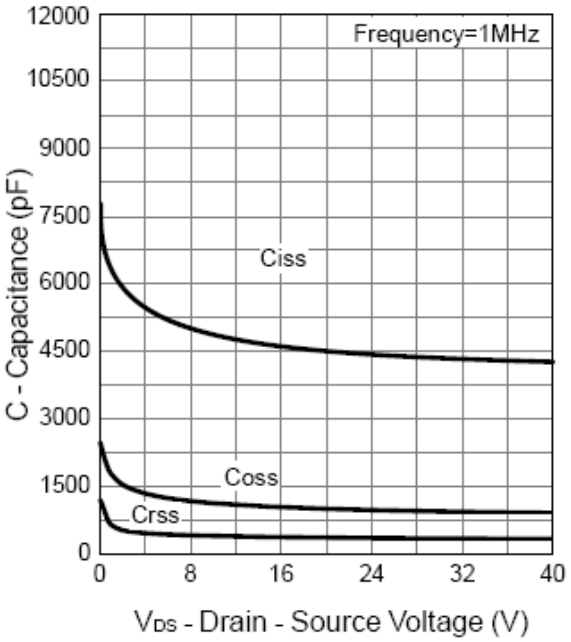
Drain-Source On Resistance



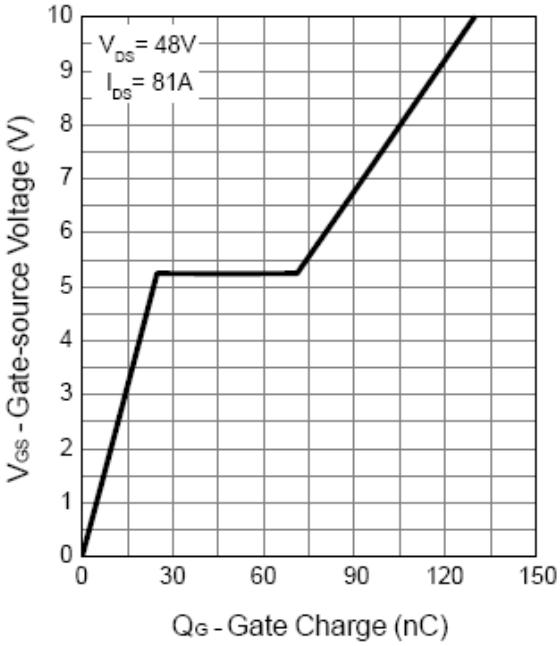
Source-Drain Diode Forward



Capacitance



Gate Charge



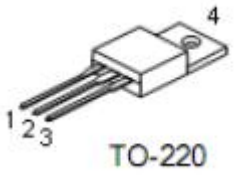
1. Features

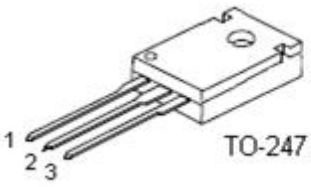
- $R_{DS(on)}$=3.5mΩ（typ.）@ V_{GS}=10V
- 100% avalanche tested
- Reliable and rugged
- Lead free and green device available（RoHS Compliant）

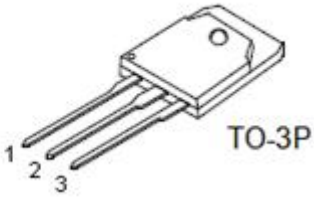
2. Applications

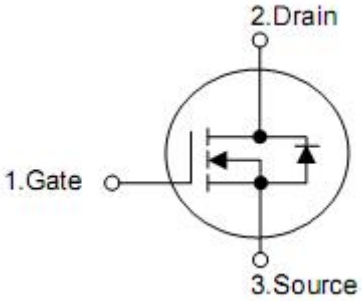
- Switching application
- Power management for inverter systems
- UPS

3.Symbol









Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

4. Absolute maximum ratings

(T_A=25°C,unless otherwise noted)

Parameter		Symbol	Rating	Units
Drain-source voltage		V_{DSS}	60	V
Gate-source voltage		V_{GSS}	±25	V
Maximum junction temperature		T_J	175	ºC
Storage temperature range		T_{STG}	-55 to175	ºC
Diode continuous forward current	T_C=25ºC	I_S	160	A
Continuous drain current	T_C=25ºC	I_D[3]	160	A
	T_C=100ºC		105	A
Pulse drain current*	T_C=25ºC	I_{DM}[4]	580	A
Avalanche energy,single pulsed	L=0.5mH	E_{AS}[5]	400	mJ
Maximum power dissipation	T_C=25 ºC	P_D	185	W
	T_C=100ºC		92.5	W

5. Thermal characteristics

Parameter	Symbol	Rating	Unit
Thermal resistance,Junction-ambient	$R_{\theta JA}$	62.5	ºC/W
Thermal resistance,Junction-case	$R_{\theta JC}$	0.81	ºC/W

6. Electrical characteristics

(T_A=25°C,unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	60	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=48V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	10	
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	3.0	4.0	V
Gate leakage current	I_{GSS}	V_{GS}=±25V, V_{DS}=0V	-	-	±100	nA
Drain-source on-state resistance	$R_{DS(on)}$[1]	V_{GS}=10V,I_D=60A	-	3.5	4.5	mΩ
Gate resistance	R_g	V_{DS}=0V, V_{GS}=0V,f=1MHz	-	0.7	-	Ω
Diode forward voltage	V_{SD}[1]	I_{SD}=60A, V_{GS}=0V	-	0.8	1.2	V
Reverse recovery time[2]	t_{rr}	I_F=60A ,V_{DD}=50V	-	30	-	nS
Reverse recovery charge[2]	Q_{rr}	dI_{SD}/dt=100A/μs	-	50	-	nC
Input capacitance[2]	C_{iss}	V_{DS}=25V,V_{GS}=0V,	-	4376	-	pF
Output capacitance[2]	C_{oss}	f=1MHz	-	857	-	
Reverse transfer capacitance[2]	C_{rss}		-	334	-	
Turn-on delay time[2]	$t_{d(on)}$	V_{DD}=30V, I_{DS}=60A,	-	28	-	ns
Rise time[2]	t_r	R_G=25Ω,V_{GS}=10V	-	18	-	
Turn-off delay time[2]	$t_{d(off)}$		-	42	-	
Fall time[2]	t_f		-	54	-	
Total gate charge[2]	Q_g	V_{DS}=48V, V_{GS}=10V	-	130	-	nC
Gate-source charge[2]	Q_{gs}	I_{DS}=60A	-	24	--	
Gate-drain charge[2]	Q_{gd}		-	47	--	

Note:1:Pulse test;pulse width≤300us duty cycle≤2%.

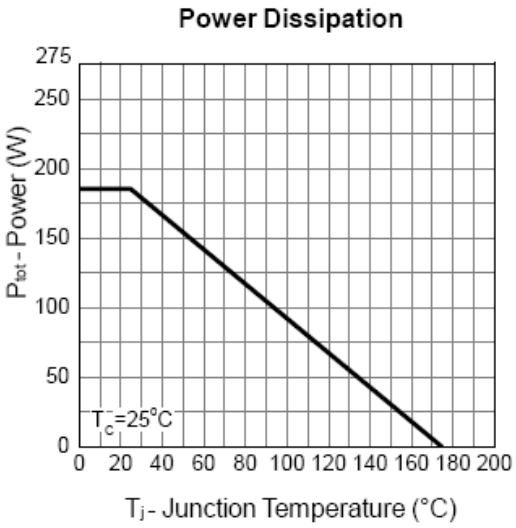
2.Guaranteed by design,not subject to production testing.

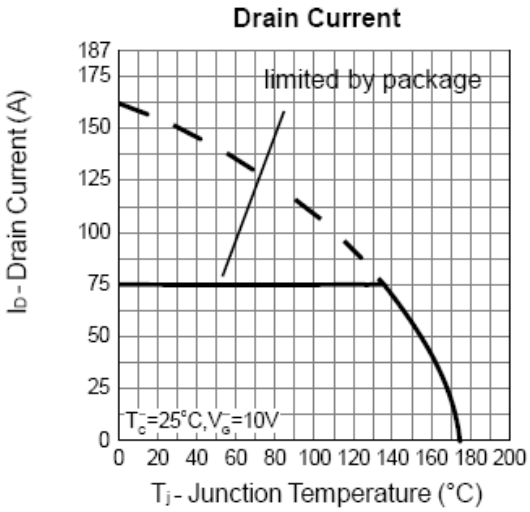
3.Package limitation current is 75A,Calculated continuous current based on maximum allowable junction temperature.

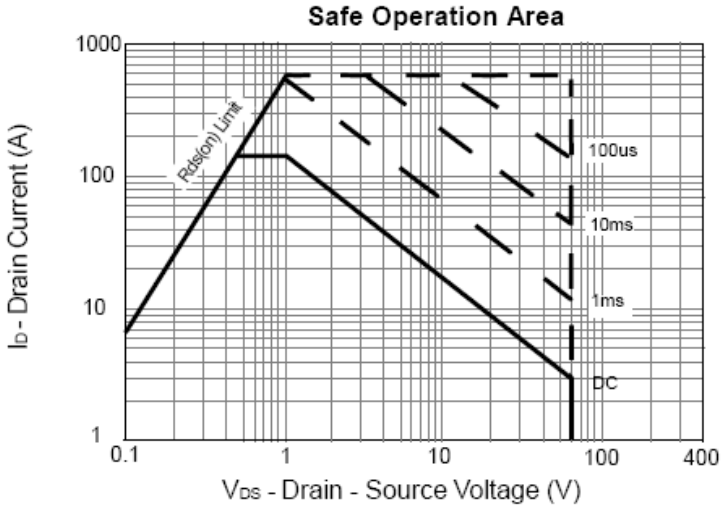
4:Repetitive rating,pulse width limited by junction temperature.

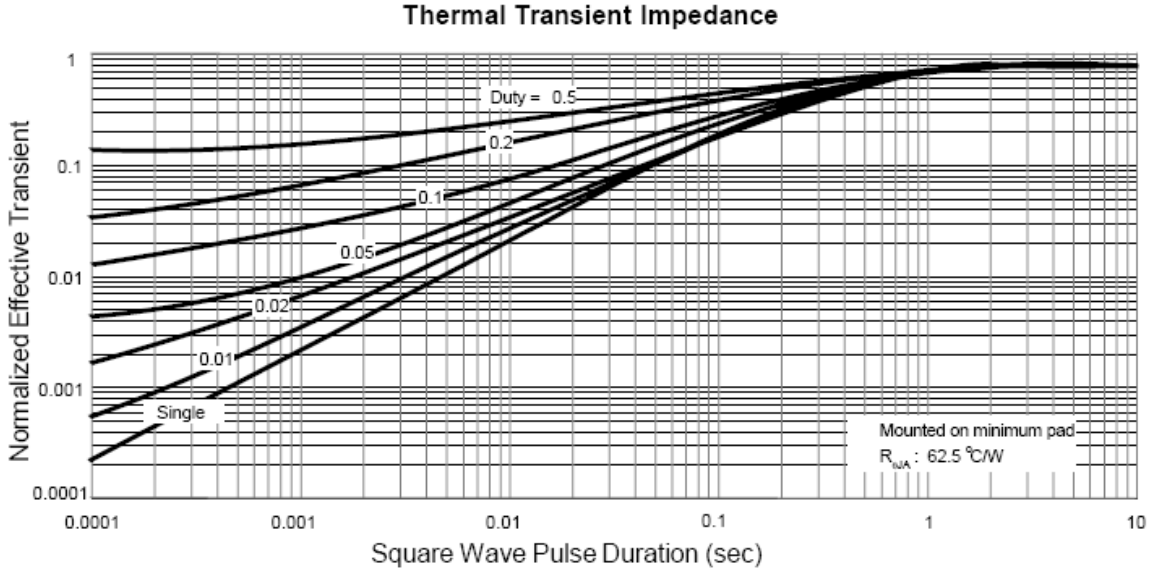
5:Starting TJ=25ºC,L=0.5mH.

7. Test circuits and waveforms

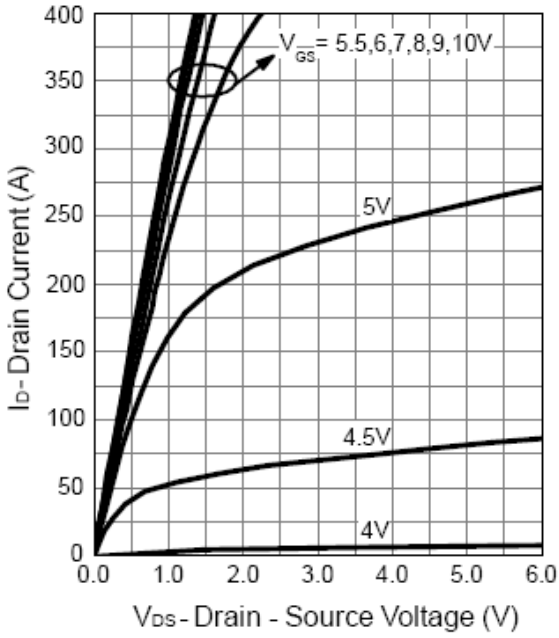




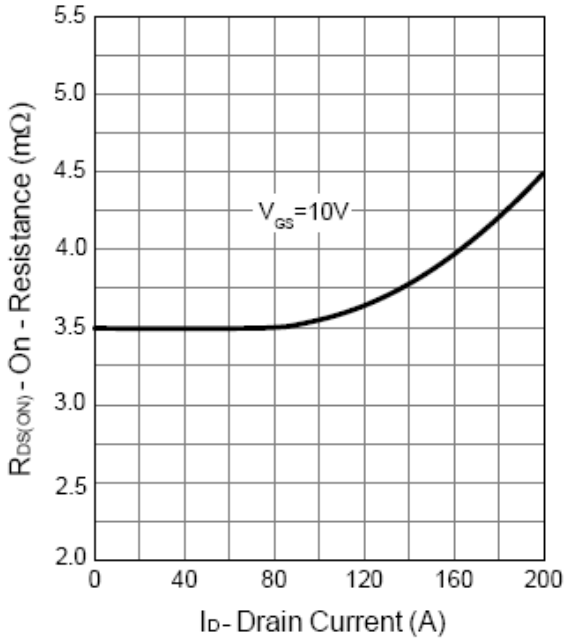




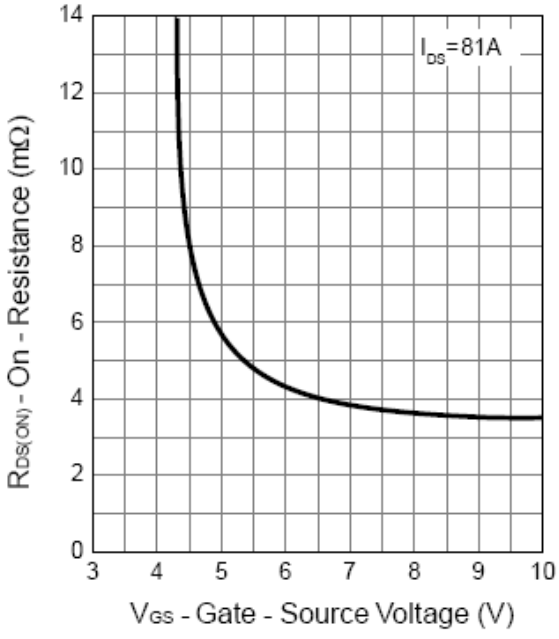
Output Characteristics



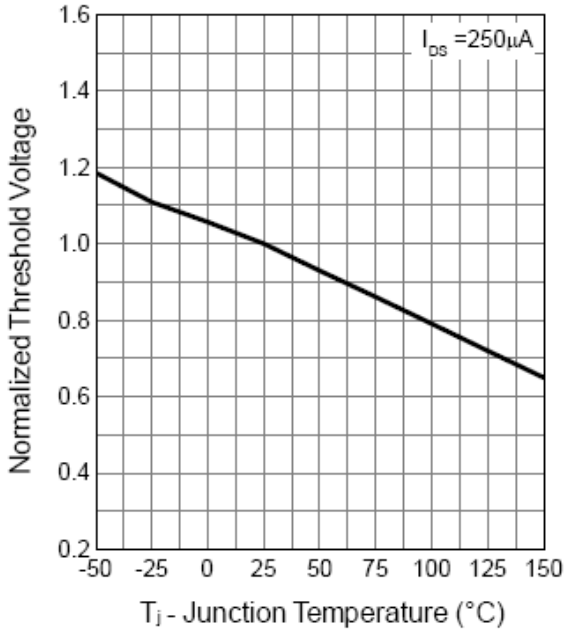
Drain-Source On Resistance



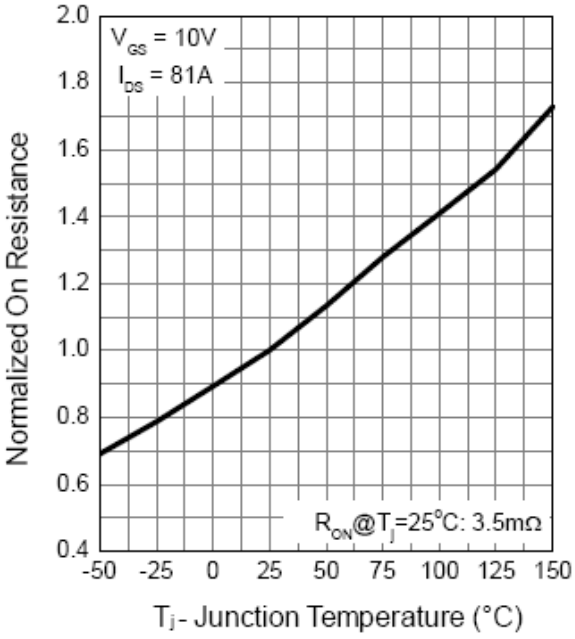
Gate-Source On Resistance



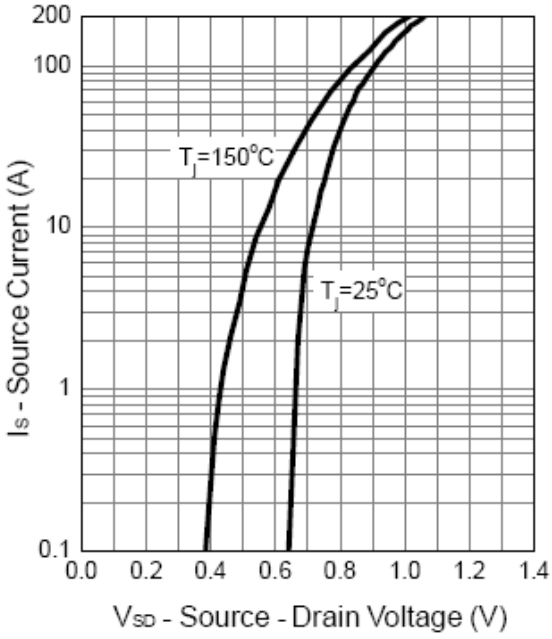
Gate Threshold Voltage



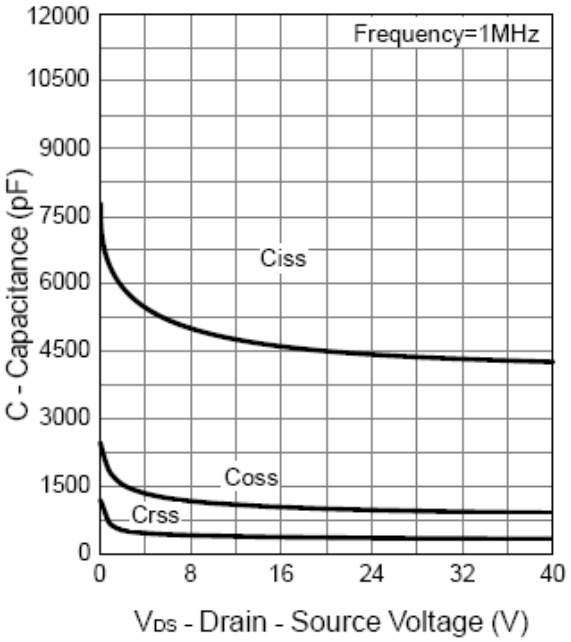
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge