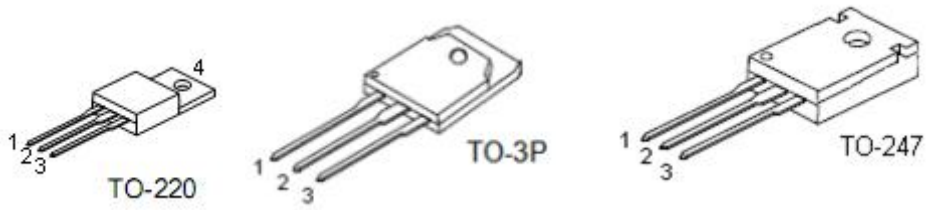
1. Features

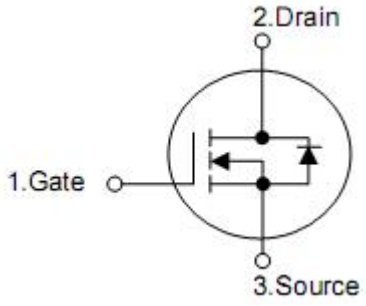
- $R_{DS(on)}$=5.5mΩ(typ.)@ V_{GS}=10V
- Lead free and green device available
- Low Rds-on to minimize conductive loss
- High avalanche current

2. Applications

- Power Supply
- UPS
- Power Tool

3.Symbol





Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

4. Absolute maximum ratings

Parameter		Symbol	Rating		Units
			To-220	To-247/3P	
Drain-source voltage		V_{DSS}	60		V
Gate-source voltage		V_{GSS}	±25		V
Junction and storage temperature range		T_{STG}	-55 to175		ºC
Continuous drain current	T_C=25ºC	I_D[3]	130		A
	T_C=100ºC		90		A
Pulse drain current	T_C=25ºC	I_{DP}[4]	360		A
Avalanche current		I_{AS}[5]	25		A
Maximum power dissipation		E_{AS}[5]	576		mJ
Maximum power dissipation	T_C=25 ºC	P_D	200	300	W
	T_C=100ºC		100	150	W

5. Thermal characteristics

Parameter	Symbol	Rating		Unit
		To-220	To-247/3P	
Thermal resistance,Junction-ambient	$R_{\theta JA}$	62.5		ºC/W
Thermal resistance,Junction-case	$R_{\theta JC}$	0.75	0.5	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=125°C	-	-	30	
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2	3	4	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=50A	-	5.5	7	mΩ
Gate resistance	R_g	V_{DS}=0V, V_{GS}=0V,f=1MHz	-	1.2	-	Ω
Diode forward voltage	V_{SD}[1]	I_{SD}=50A, V_{GS}=0V	-	0.88	1.3	V
Diode continuous forward current	I_S[3]		-	-	50	A
Reverse recovery time	t_{rr}	I_{SD}=70A,V_{DD}=50V,	-	15.2	-	nS
Reverse recovery charge	Q_{rr}	dI_{SD}/dt=100A/μs	-	6.16	-	nC
Input capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,	-	3100	-	pF
Output capacitance	C_{oss}	f=1MHz	-	926	-	
Reverse transfer capacitance	C_{rss}		-	451	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V, I_D=70A,	-	20	-	ns
Rise time	t_r	R_G=25Ω,V_{GS}=10V	-	83.7	-	
Turn-off delay time	$t_{d(off)}$		-	108	-	
Fall time	t_f		-	92.6	-	
Total gate charge	Q_g	V_{DS}=50V, V_{GS}=10V	-	66.34	-	nC
Gate-source charge	Q_{gs}	I_D=70A	-	12.35	--	
Gate-drain charge	Q_{gd}		-	33.52	--	

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

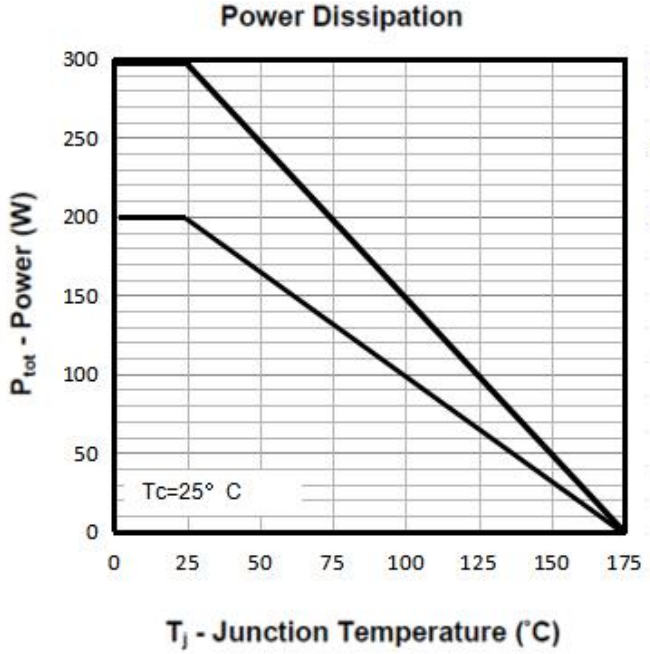
2. Guaranteed by design, not subject to production testing.

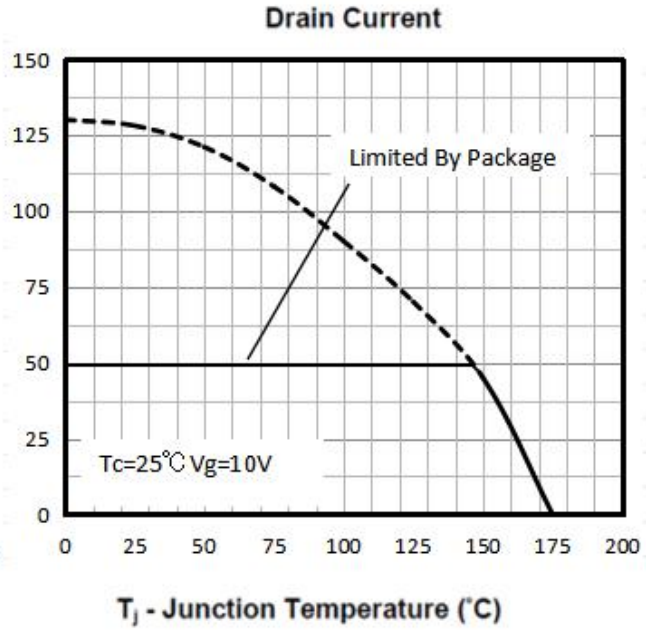
3. Package limitation current is 50A.Calculated continuous current based on maximum allowable junction temperature.

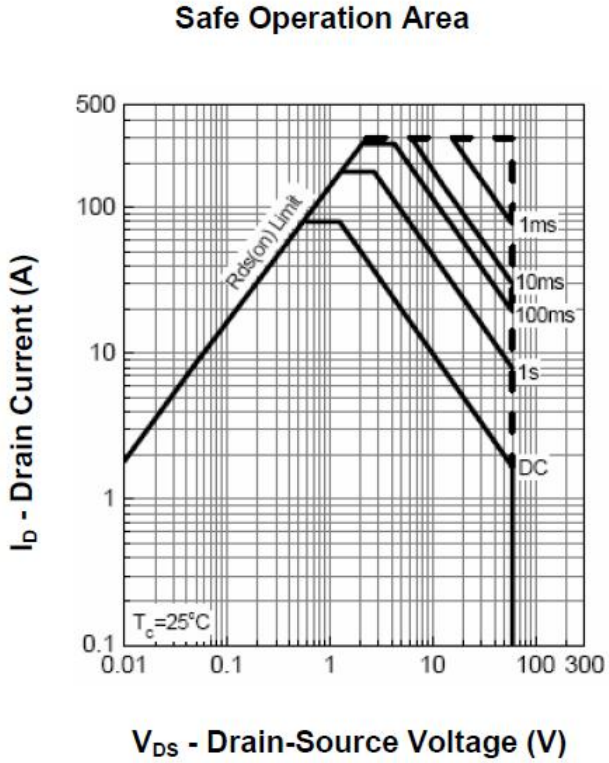
4. Repetitive rating, pulse width limited by max junction temperature.

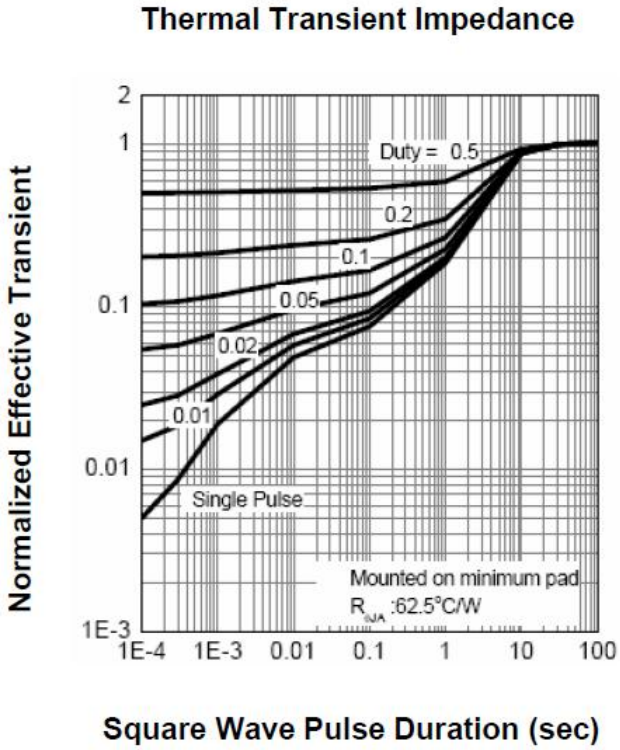
5.Starting T_J=25℃,L=0.5mH,I_{AS}=48A.

7. Test circuits and waveforms

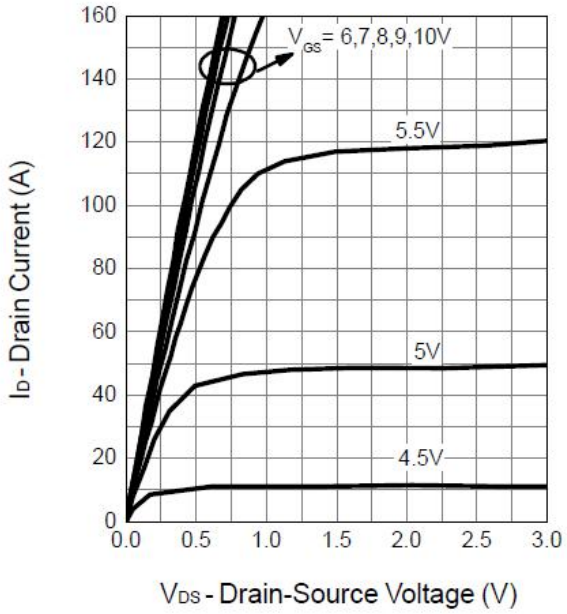




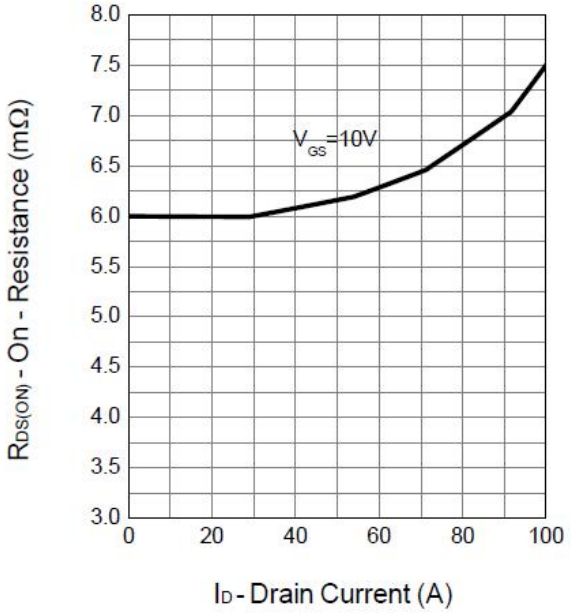




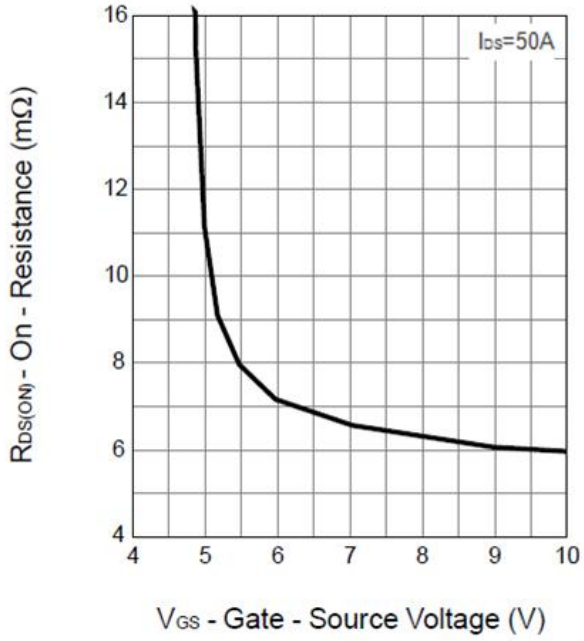
Output Characteristics



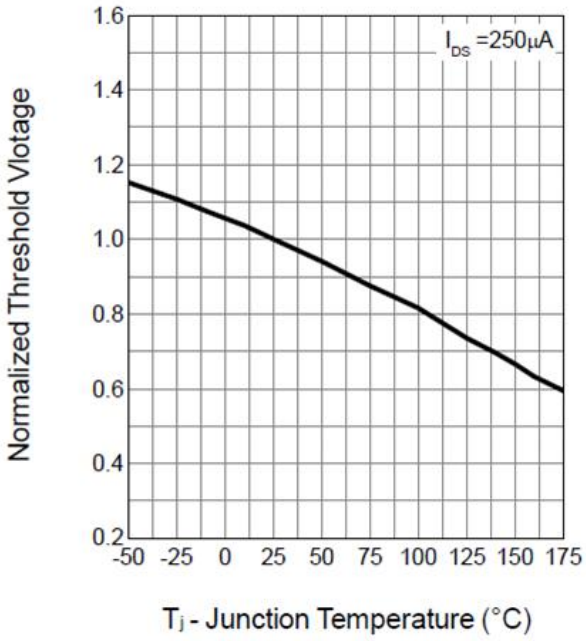
Drain-Source On Resistance



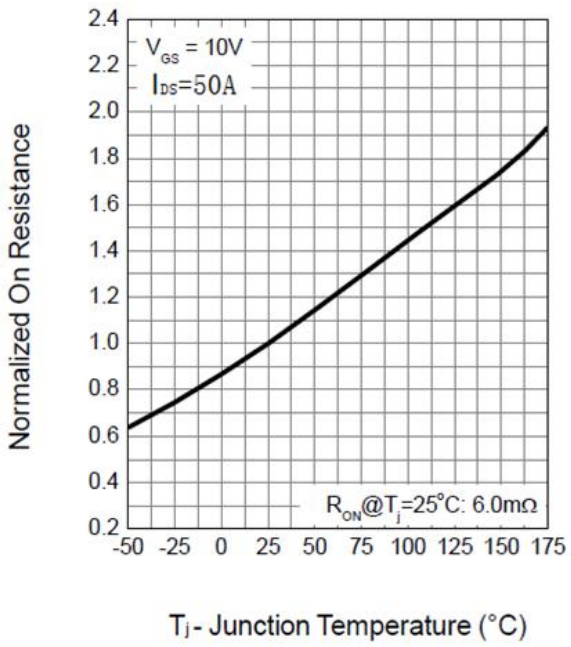
Drain-Source On Resistance



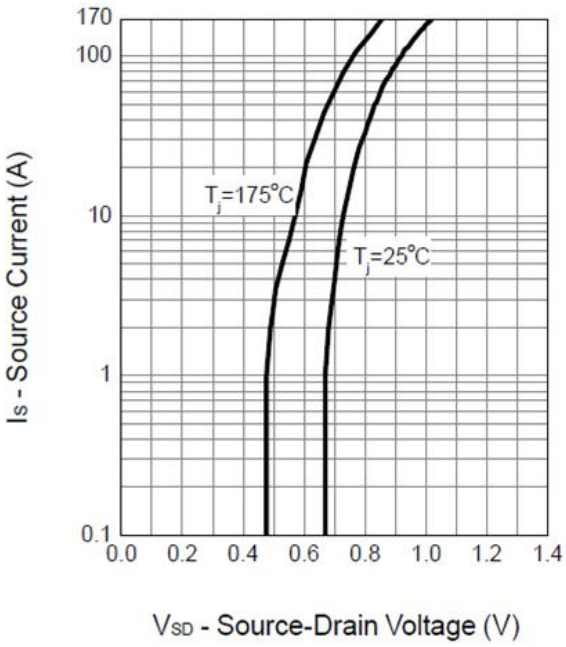
Gate Threshold Voltage



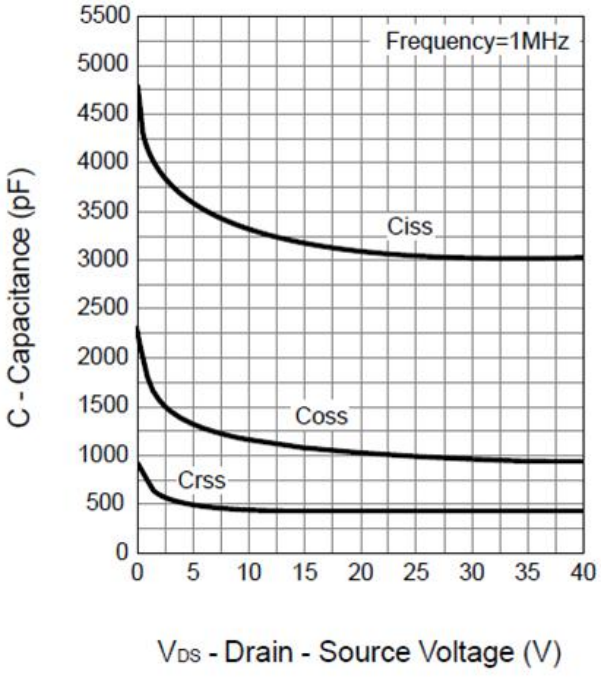
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge