

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

- Advanced Technology
- Excellent $R_{DS(ON)}$ and Switching Performance

Applications

- UPS
- BMS
- Uninterruptible power supply

Quick reference

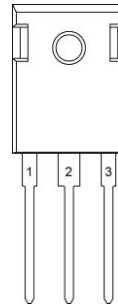
- $V_{DS} = 65V$
- $I_D = 150A$
- $R_{DS(ON)} \leq 5.6m\Omega @ V_{GS}=10V$ (Type: 4.8m Ω)

Pin Description

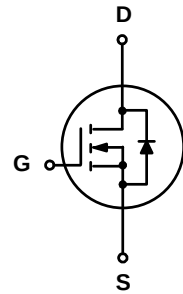
Pin	Description
1	Gate(G)
2	Drain(D)
3	Source(S)

Simplified Outline

Symbol



Top View
TO-247-3L



Package Marking and Ordering Information

Product Name	Package	Marking		Reel Size	Tape Width	Quantity
KJ150N06P	TO-247-3L	150N06 XXXXYY	XXXXYY: Date Code	-	-	1000

2. Absolute Maximum Ratings ($T_J=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	65	V
V_{GS}	Gate-Source Voltage	± 25	V
$I_D @ T_C=25^\circ C$	Continuous Drain Current, $V_{GS}@10V$ ¹	150	A
I_{DM}	Pulsed Drain Current ²	520	A
I_{AS}	Diode forward current	55	A
$P_D @ T_C=25^\circ C$	Power Dissipation ⁴	172	W
E_{AS}	Single Pulse Avalanche Energy ³	225	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	40	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ⁴	1.4	$^\circ C/W$

3. Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	65	72	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-body Leakage current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
V _{GS(th)}	Gate-Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2.0	2.8	4.0	V
R _{DS(on)}	Drain-Source on-Resistance ²	V _{GS} =10V, I _D =55A	-	4.8	5.6	mΩ
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	-	3135	-	pF
C _{oss}	Output Capacitance		-	521	-	
C _{rss}	Reverse Transfer Capacitance		-	306	-	
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =55A	-	77	-	nC
Q _{gs}	Gate-Source Charge		-	18	-	
Q _{gd}	Gate-Drain Charge		-	30	-	
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =30V, R _G =1.8Ω, I _D =55A	-	15	-	ns
t _r	Turn-on Rise Time		-	89	-	
t _{d(off)}	Turn-off Delay Time		-	36	-	
t _f	Turn-off Fall Time		-	91	-	
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	123	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current				492	A
V _{SD}	Diode Forward Voltage	I _S =30A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =550A, di/dt=100A/μs	-	32	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	31	-	nC

Notes:

- 1、The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2、The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The E_{AS} data shows Max. rating. The test condition is $T_J=25^{\circ}\text{C}$, $V_{DD}=35V$, $V_{GS}=10V$, $R_G=25\Omega$, $L=0.5mH$, $I_{AS}=55A$
- 4、The power dissipation is limited by 175°C junction temperature
- 5、The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

4. Typical Characteristics

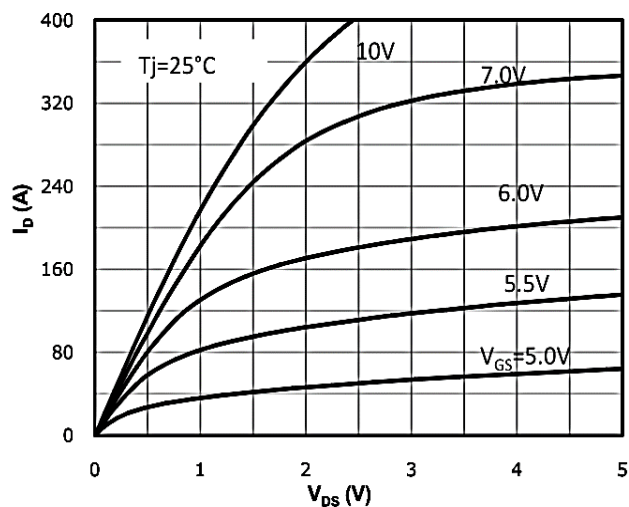


Figure 1: Output Characteristics

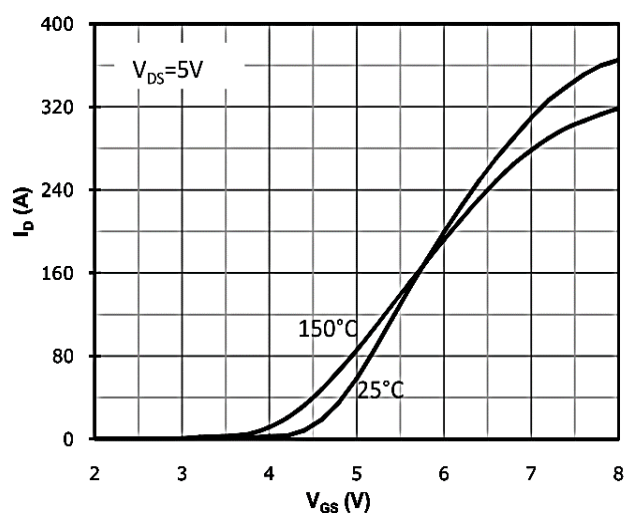


Figure 2: Typical Transfer Characteristics

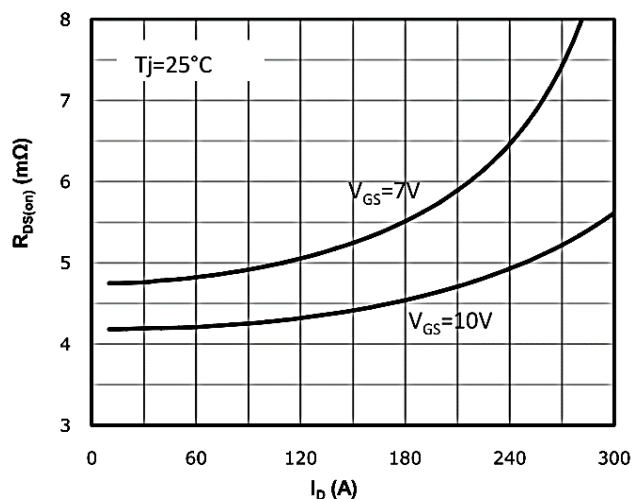


Figure 3: R_DS(on) vs Drain Current and

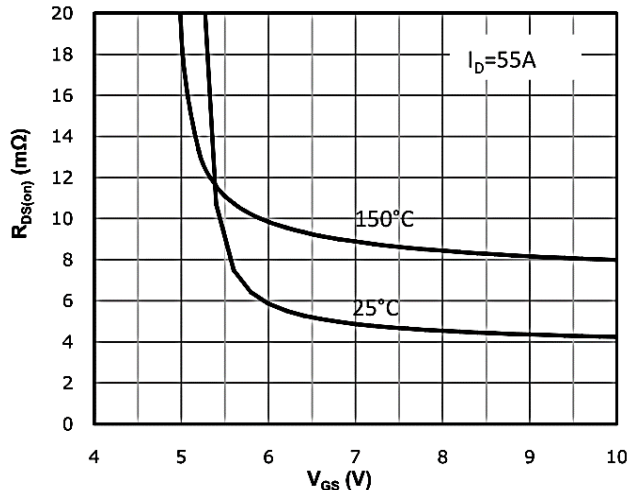


Figure 4: R_DS(on) vs Gate Voltage

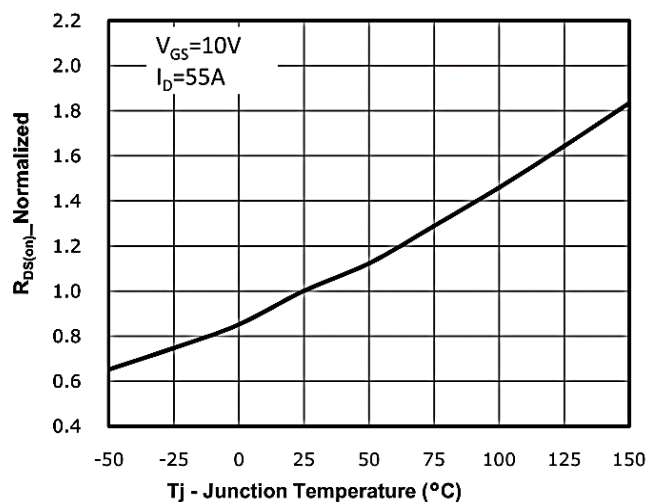


Figure 5: R_DS(on) vs. Temperature

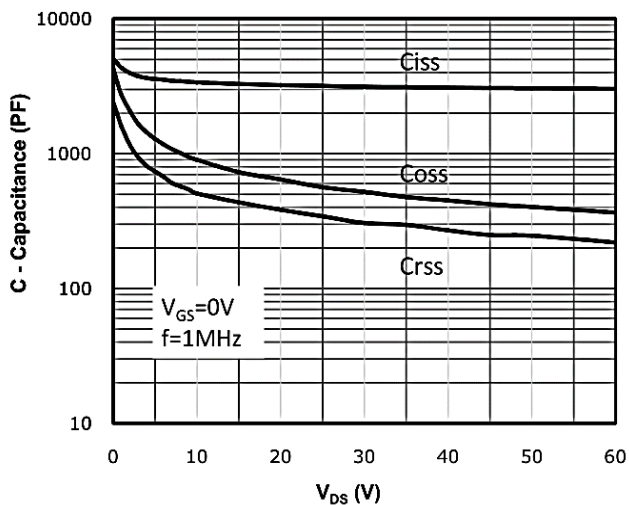


Figure 6: Capacitance Characteristics

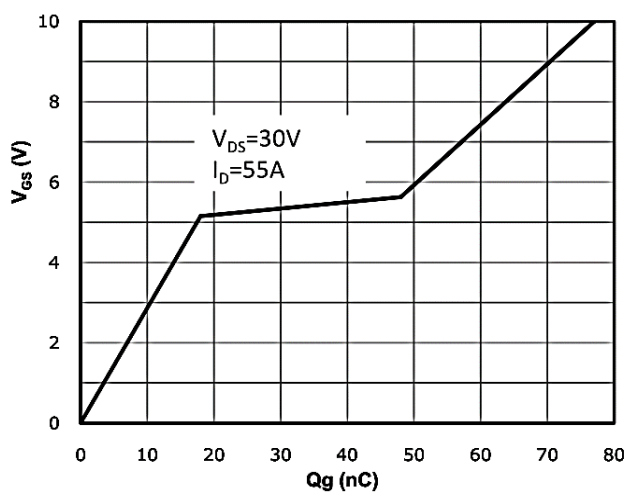


Figure 7: Gate Charge Characteristics

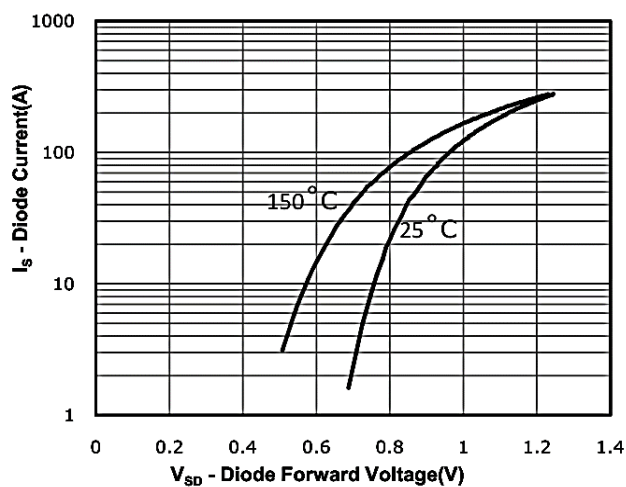


Figure 8: Body-diode Forward Characteristics

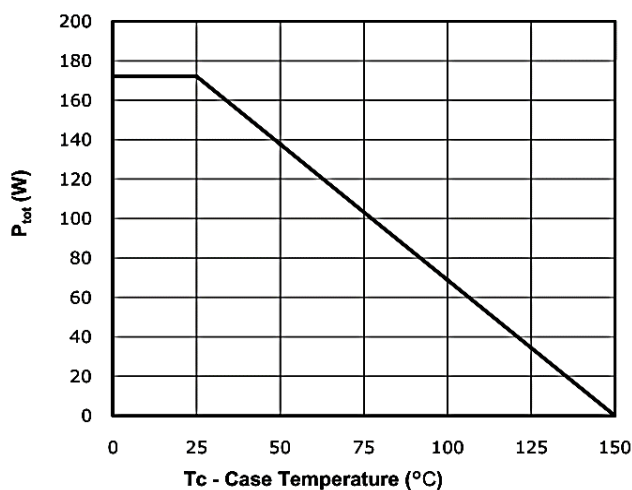


Figure 9: Power Dissipation

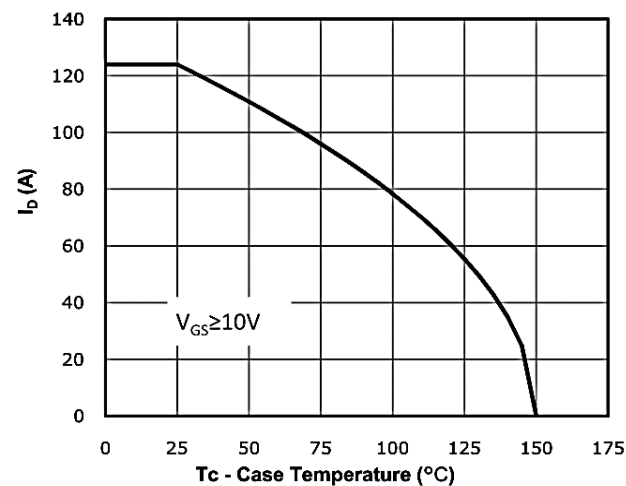


Figure 10: Drain Current Derating

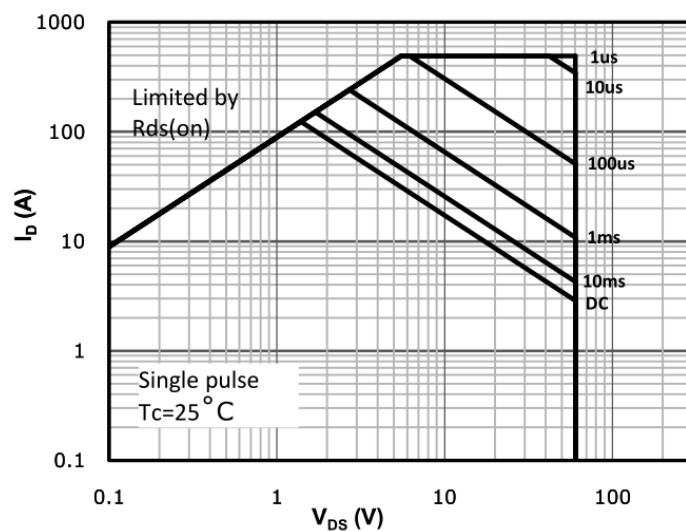
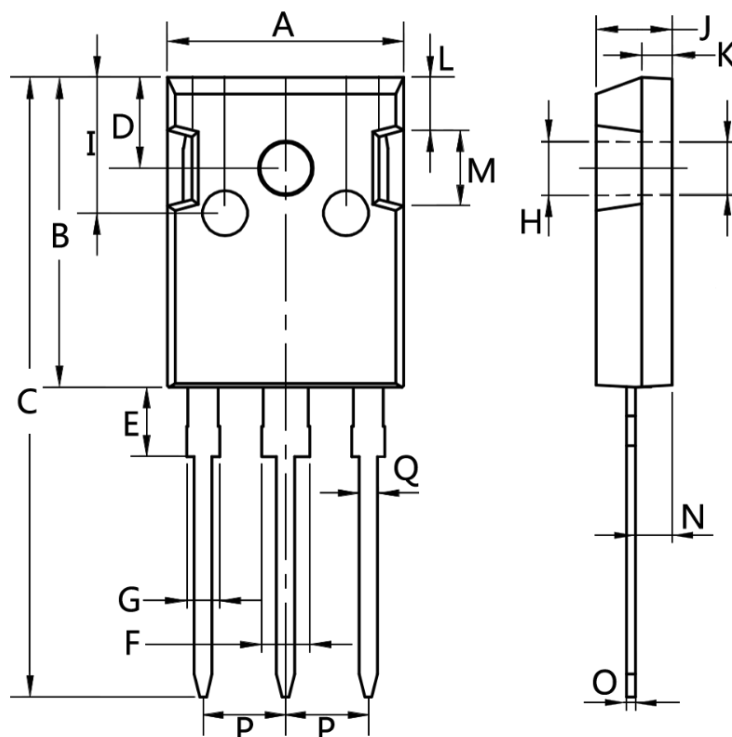


Figure.11: Safe Operating Area

5.Package Mechanical Data

TO-247-3L



Dim.	Min.	Max.
A	15.0	16.0
B	20.0	21.0
C	41.0	42.0
D	5.0	6.0
E	4.0	5.0
F	2.5	3.5
G	1.75	2.5
H	3.0	3.5
I	8.0	10.0
J	4.9	5.1
K	1.9	2.1
L	3.5	4.0
M	4.75	5.25
N	2.0	3.0
O	0.55	0.75
P	Type 5.08	
Q	1.2	1.3