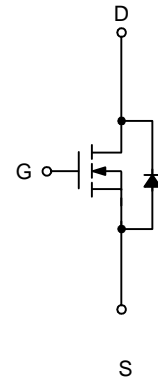


# 30H150

## N-Channel Enhancement Mode MOSFET

### Features

- 30V/150 A  
 $R_{DS(ON)}=4.5m\Omega$  (max) @  $V_{GS}=10V$   
 $R_{DS(ON)}=6.5m\Omega$  (max) @  $V_{GS}=4.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- Avalanche Rated
- Lead Free and Green Devices Available (RoHS Compliant)



N-Channel MOSFET

### Applications

- Power Management in Desktop Computer or DC/DC Converters.

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit	
<b>Common Ratings</b> ( $T_A=25^\circ\text{C}$ Unless Otherwise Noted)				
$V_{DSS}$	Drain-Source Voltage	30	V	
$V_{GSS}$	Gate-Source Voltage	$\pm 20$		
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$	
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
$I_S$	Diode Continuous Forward Current	150	A	
$I_{DP}$	300 $\mu\text{s}$ Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	200	A
		$T_C=100^\circ\text{C}$	120	
$I_D$	Continuous Drain Current	$T_C=25^\circ\text{C}$	150	A
		$T_C=100^\circ\text{C}$	68	
$P_D$	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	50	W
		$T_C=100^\circ\text{C}$	20	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2.5	$^\circ\text{C}/\text{W}$	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	50	$^\circ\text{C}/\text{W}$	
$E_{AS}$	Drain-Source Avalanche Energy, $L=0.5\text{mH}$	225	mJ	

Note : \* Current limited by bond wire.

## Electrical Characteristics (T<sub>A</sub> = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	30H150			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
B <sub>V</sub> DSS	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	-	-	1	μA
		T <sub>J</sub> =85°C	-	-	30	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	1.0	1.4	1.7	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
R <sub>DS(ON)</sub> <sup>a</sup>	Drain-Source On-state Resistance	V <sub>GS</sub> =10V, I <sub>DS</sub> =40A	-	5.5	7.5	mΩ
		V <sub>GS</sub> =4.5V, I <sub>DS</sub> =20A	-	7.2	10	
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>a</sup>	Diode Forward Voltage	I <sub>SD</sub> =40A, V <sub>GS</sub> =0V	-	0.85	1.1	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>DS</sub> =40A, dI <sub>SD</sub> /dt=100A/μs	-	25	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge		-	10	-	nC

## Electrical Characteristics (Cont.) (T<sub>A</sub> = 25°C Unless Otherwise Noted)

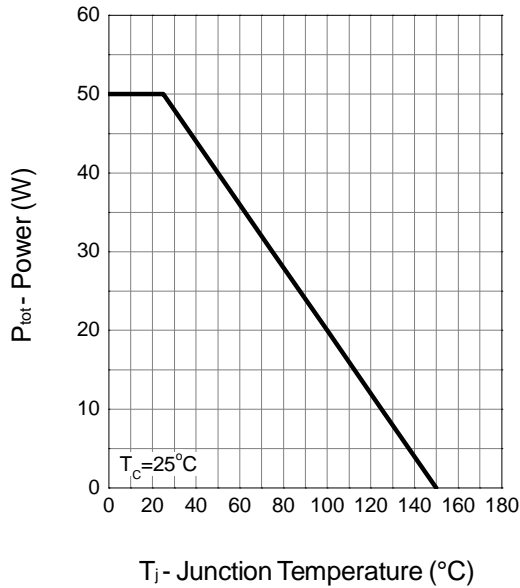
Symbol	Parameter	Test Conditions	30H80(A)			Unit
			Min.	Typ.	Max.	
<b>Dynamic Characteristics<sup>b</sup></b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	-	1.6	-	Ω
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, Frequency=1.0MHz	-	2000	2800	pF
C <sub>oss</sub>	Output Capacitance		-	400	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	320	-	
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =15V, R <sub>L</sub> =15Ω, I <sub>DS</sub> =1A, V <sub>GEN</sub> =10V, R <sub>G</sub> =6Ω	-	14	26	ns
t <sub>r</sub>	Turn-on Rise Time		-	12	23	
t <sub>d(OFF)</sub>	Turn-off Delay Time		-	49	89	
t <sub>f</sub>	Turn-off Fall Time		-	21	39	
<b>Gate Charge Characteristics<sup>b</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>DS</sub> =40A	-	22.5	32	nC
Q <sub>gs</sub>	Gate-Source Charge		-	5.6	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	13	-	

Note a : Pulse test ; pulse width ≤ 300μs, duty cycle ≤ 2%.

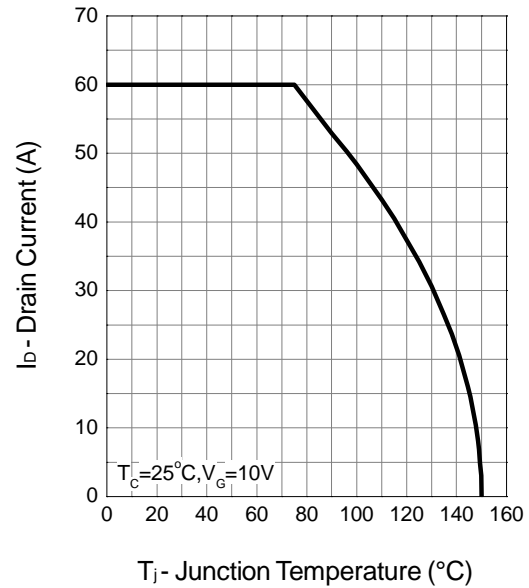
Note b : Guaranteed by design, not subject to production testing.

## Typical Operating Characteristics

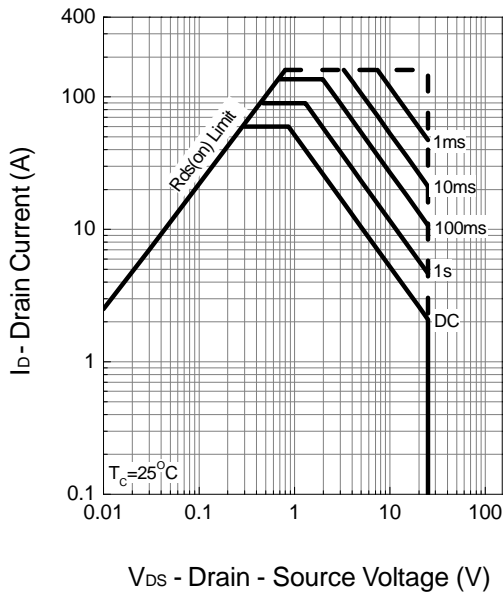
### Power Dissipation



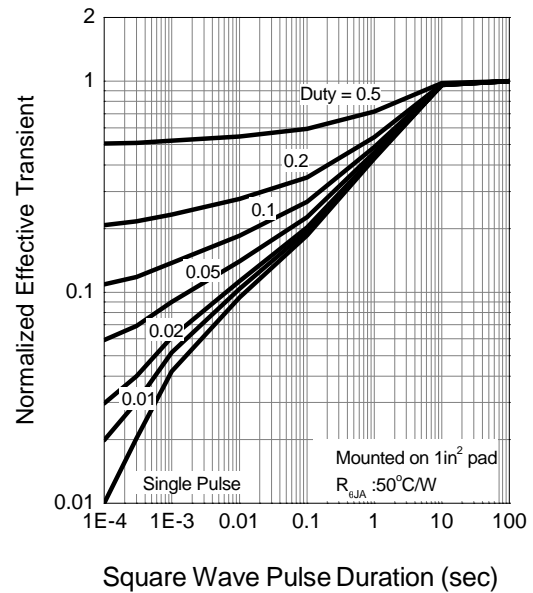
### Drain Current



### Safe Operation Area

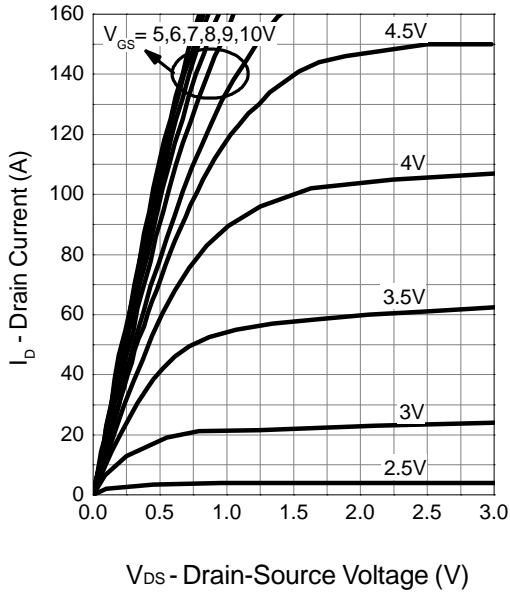


### Thermal Transient Impedance

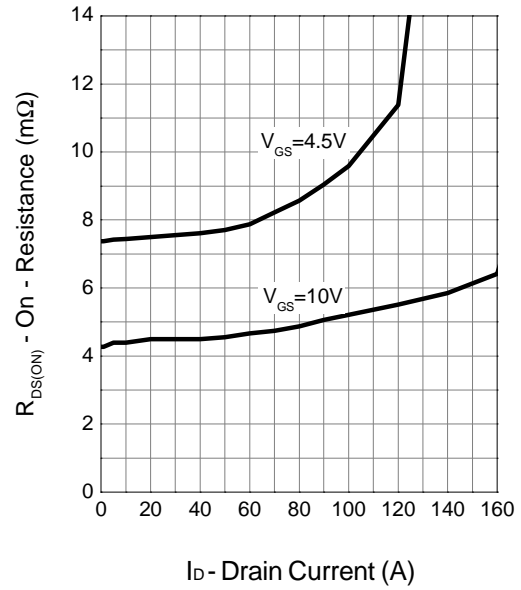


## Typical Operating Characteristics (Cont.)

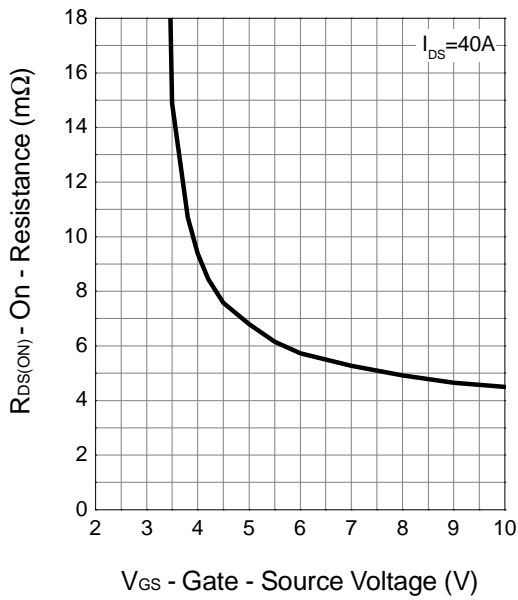
### Output Characteristics



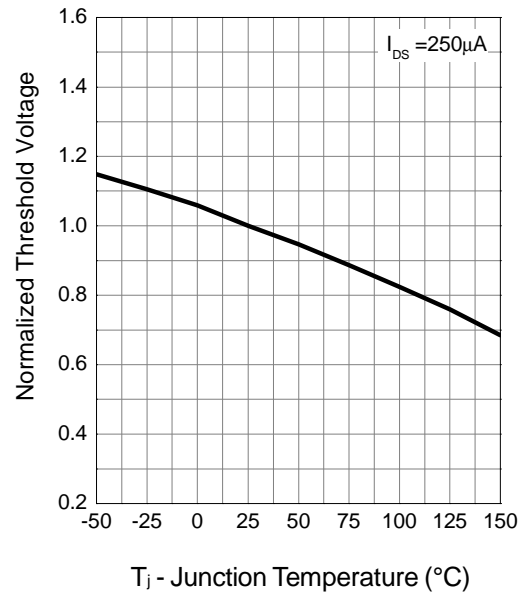
### Drain-Source On Resistance



### Gate-Source On Resistance

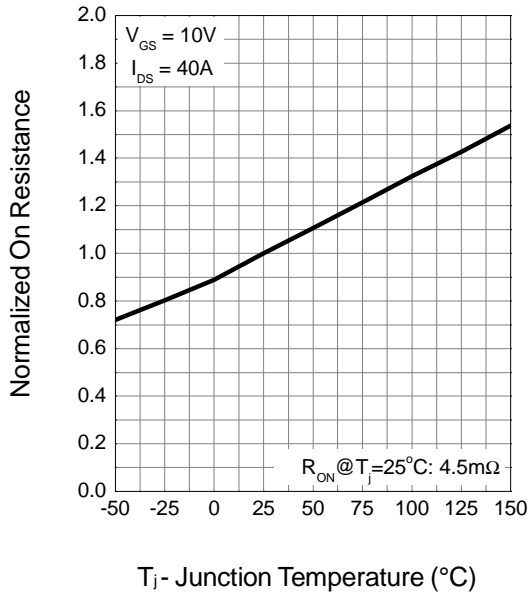


### Gate Threshold Voltage

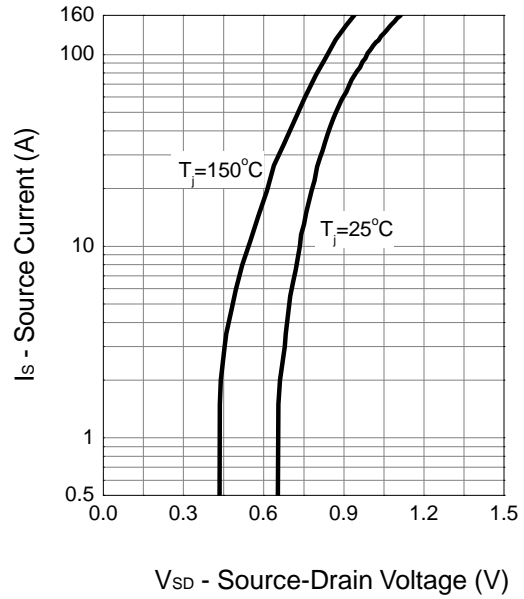


## Typical Operating Characteristics (Cont.)

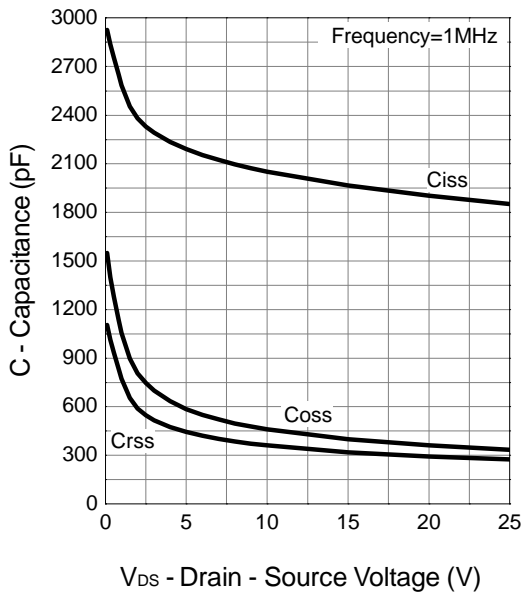
### Drain-Source On Resistance



### Source-Drain Diode Forward



### Capacitance



### Gate Charge

