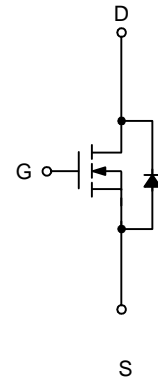


30H80/30H80A

N-Channel Enhancement Mode MOSFET

Features

- 30H80 (TO-220) / 30H80A (TO-262)
- 30V/80A,
 $R_{DS(ON)}=7.5m\Omega$ (max) @ $V_{GS}=10V$
 $R_{DS(ON)}=10m\Omega$ (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	
Common Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)				
V_{DSS}	Drain-Source Voltage	30	V	
V_{GSS}	Gate-Source Voltage	± 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	80	A	
I_{DP}	300 μs Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	160	A
		$T_C=100^\circ\text{C}$	90	
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	80*	A
		$T_C=100^\circ\text{C}$	48	
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	$^\circ\text{C/W}$	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	50	$^\circ\text{C/W}$	
E_{AS}	Drain-Source Avalanche Energy, $L=0.5\text{mH}$	225	mJ	

Note : * Current limited by bond wire.

Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	30H80(A)			Unit
			Min.	Typ.	Max.	
Static Characteristics						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.0	1.4	1.7	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^a	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =40A	-	5.5	7.5	mΩ
		V _{GS} =4.5V, I _{DS} =20A	-	7.2	10	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =40A, V _{GS} =0V	-	0.85	1.1	V
t _{rr}	Reverse Recovery Time	I _{DS} =40A, dI _{SD} /dt=100A/μs	-	25	-	ns
Q _{rr}	Reverse Recovery Charge		-	10	-	nC

Electrical Characteristics (Cont.) (T_A = 25°C Unless Otherwise Noted)

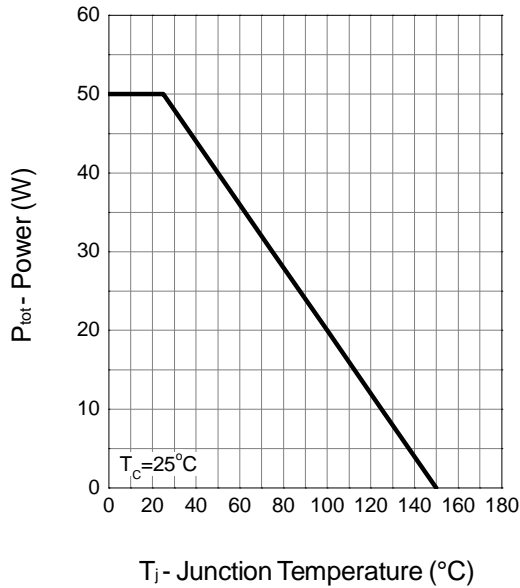
Symbol	Parameter	Test Conditions	30H80(A)			Unit
			Min.	Typ.	Max.	
Dynamic Characteristics^b						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.6	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	2000	2800	pF
C _{oss}	Output Capacitance		-	400	-	
C _{rss}	Reverse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

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

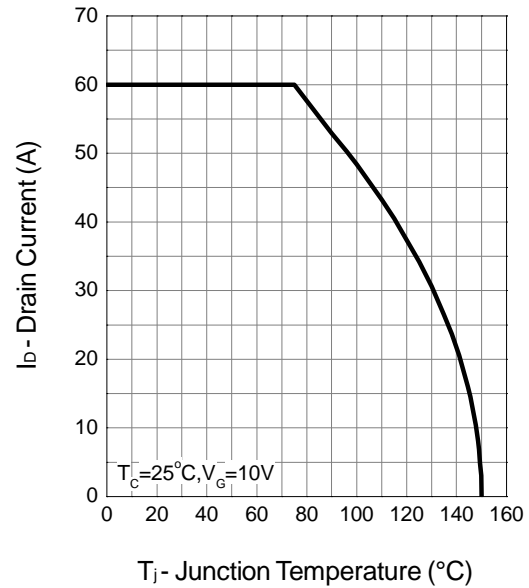
Note b : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

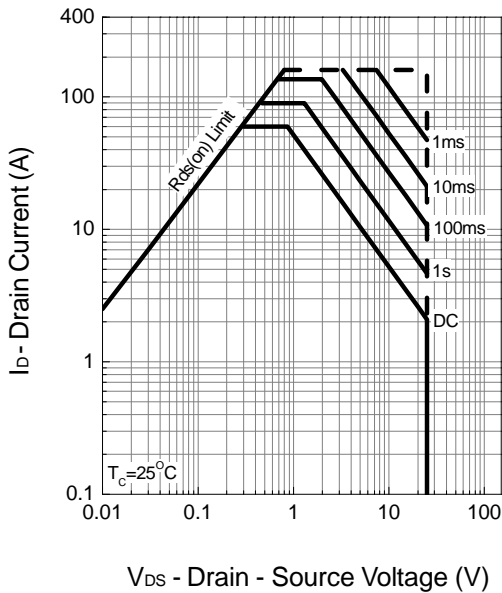
Power Dissipation



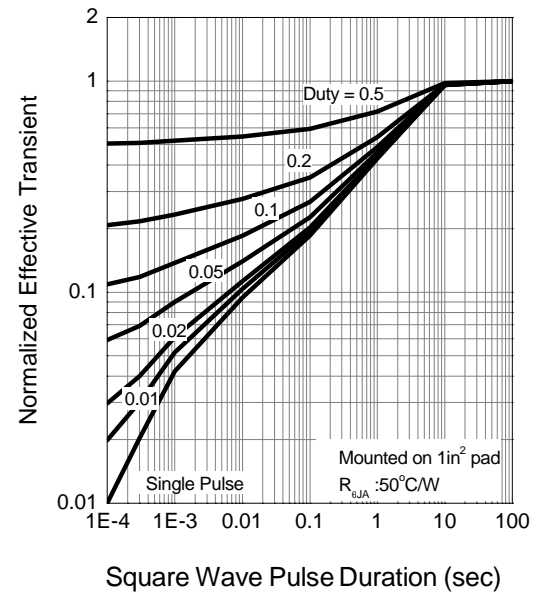
Drain Current



Safe Operation Area

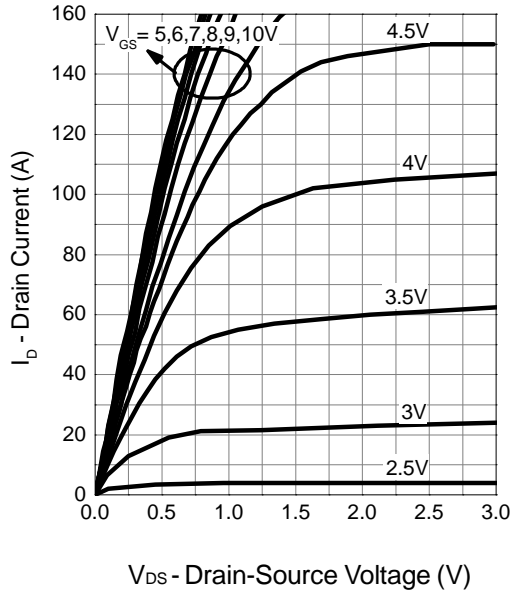


Thermal Transient Impedance

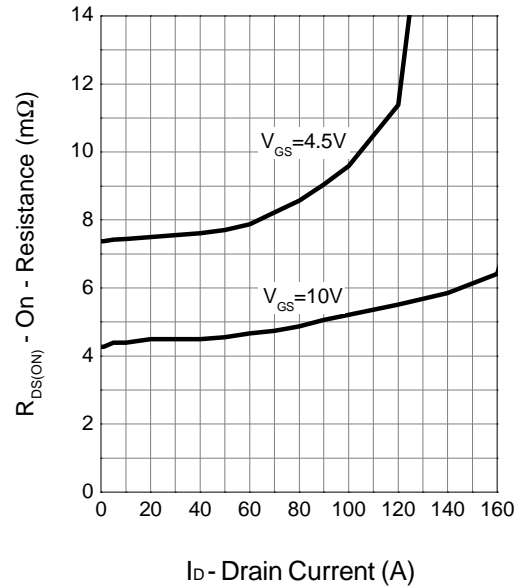


Typical Operating Characteristics (Cont.)

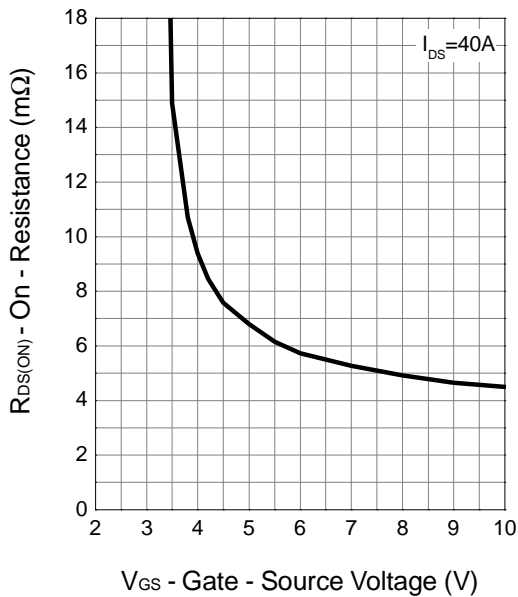
Output Characteristics



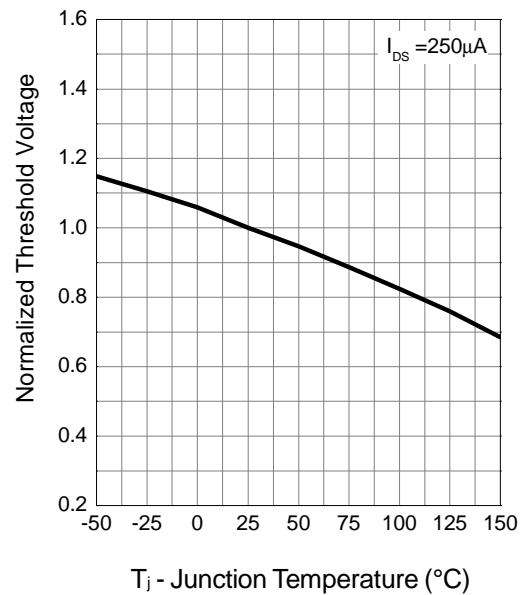
Drain-Source On Resistance



Gate-Source On Resistance

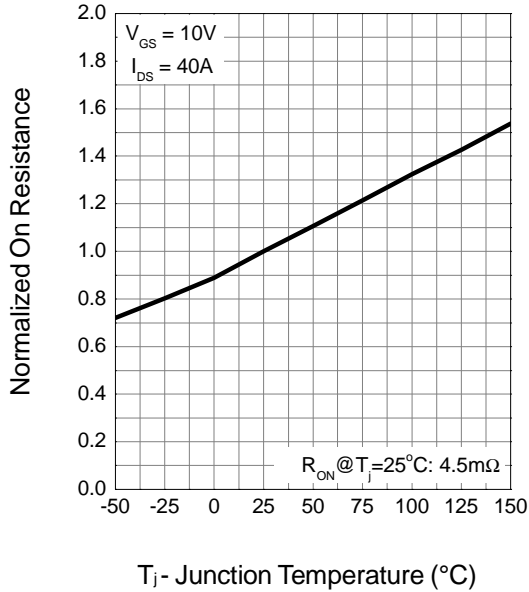


Gate Threshold Voltage

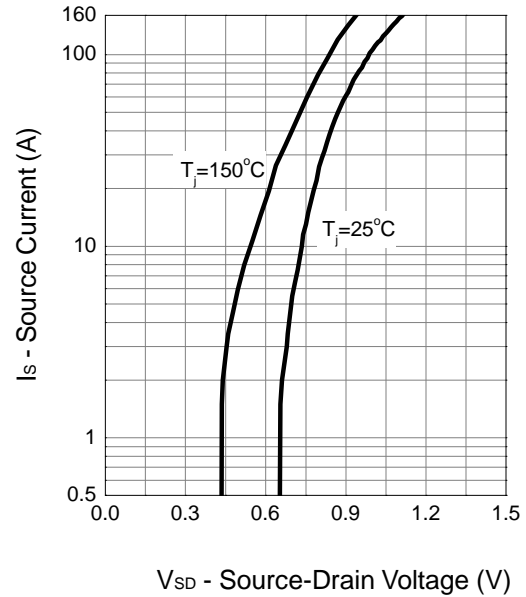


Typical Operating Characteristics (Cont.)

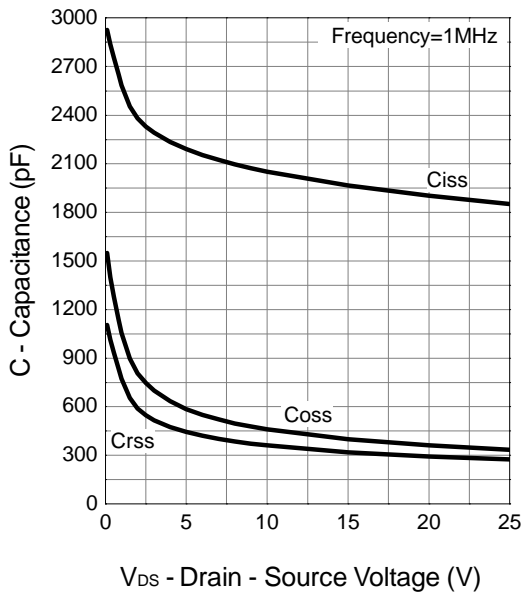
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

