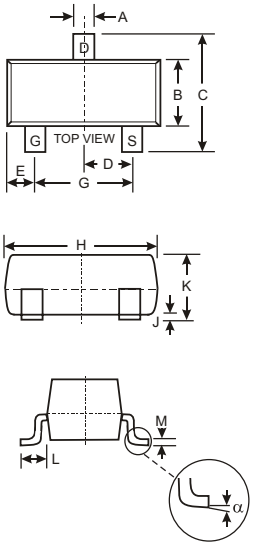
HAICHUANG SEMI

HC3400

N-CHANNEL ENHANCEMENT MODE MOSFET

Features

- Super high density cell design for extremely low $R_{DS(ON)}$.
- Exceptional on-resistance and maximum DC current capability.
- We declare that the material of product compliance with RoHS requirements.



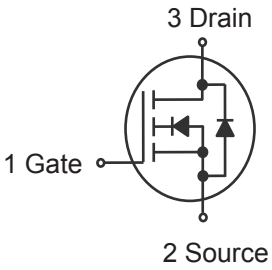
SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

APPLICATIONS

- Power Management in Notebook.
- Portable equipment.
- Battery powered system.
- Load switch.
- Marking Code:3400 OR A09T.

Maximum Ratings @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current	I_D	5.8	A
Peak Drain Current [1]	I_{DM}	30	A
Power Dissipation	P_D	1.1	W
Thermal Resistance from Juntion to Ambient (PCB mounted) [2]	$R_{\theta JA}$	114	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃



[1] Repetitive Rating: Pulse width limited by the Maximum junction temperation.

[2] 1 in^2 2oz Cu PCB board.

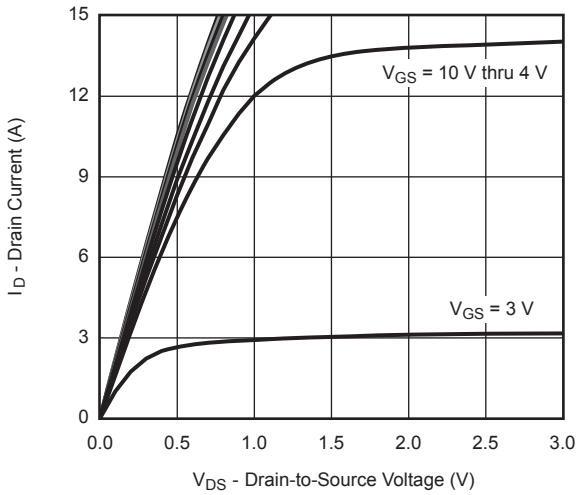
Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)\,DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
Gate-source leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
On characteristics						
Drain-source on-resistance (note 3)	$R_{DS(on)}$	V_{GS} =10V, I_D =5.8A		21	28	mΩ
		V_{GS} =4.5V, I_D =5A		23	30	mΩ
		V_{GS} =2.5V,I_D=4A		30	47	mΩ
Forward tranconductance	g_{FS}	V_{DS} =5V, I_D =5A	8			S
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.7		1.4	V
Dynamic Characteristics (note 4,5)						
Input capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		335		pF
Output capacitance	C_{oss}			45		pF
Reverse transfer capacitance	C_{rss}			17		pF
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz		4.4	8.8	Ω
Switching Characteristics (note 4,5)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.7Ω,R_{GEN}=3Ω		5	10	ns
Turn-on rise time	t_r			12	20	ns
Turn-off delay time	$t_{d(off)}$			10	15	ns
Turn-off fall time	t_f			5	10	ns
Drain-source diode characteristics and maximum ratings						
Diode forward voltage (note 3)	V_{SD}	I_S=2.7A,V_{GS}=0V		0.8	1.2	V

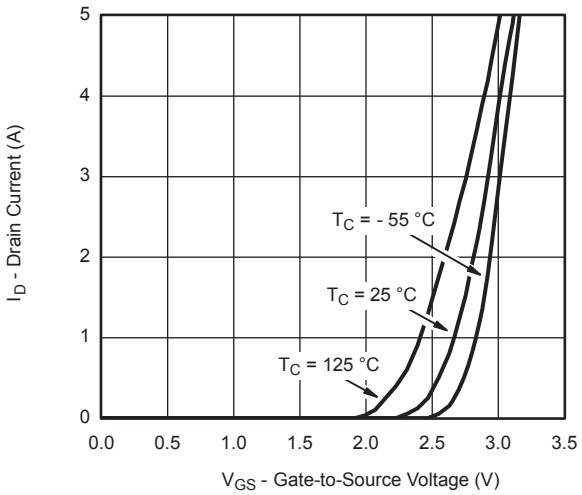
Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

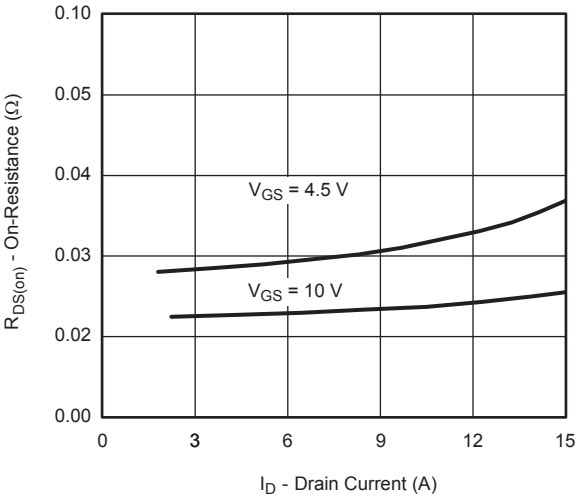
TYPICAL TRANSIENT CHARACTERISTICS



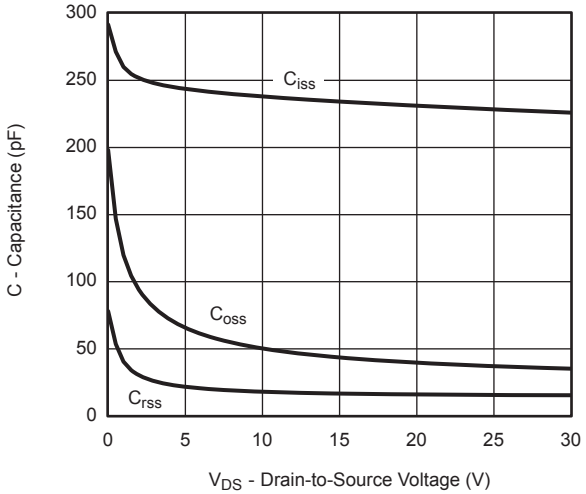
Output Characteristics



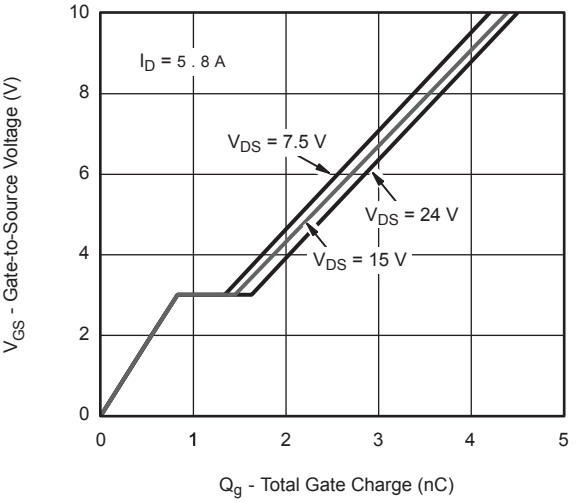
Transfer Characteristics



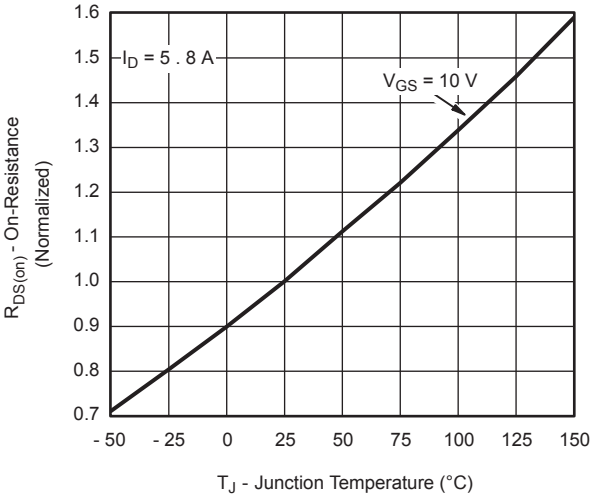
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

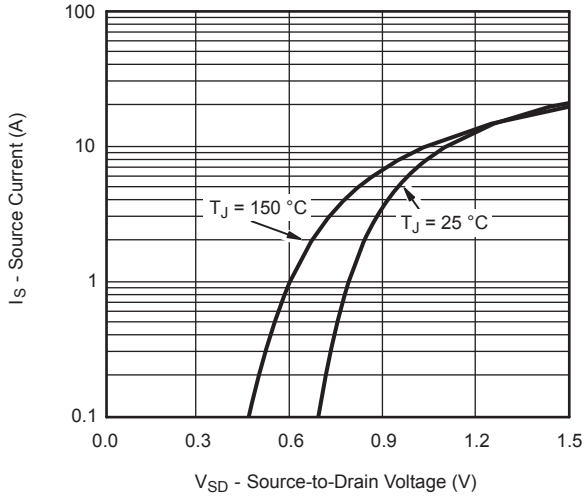


Gate Charge

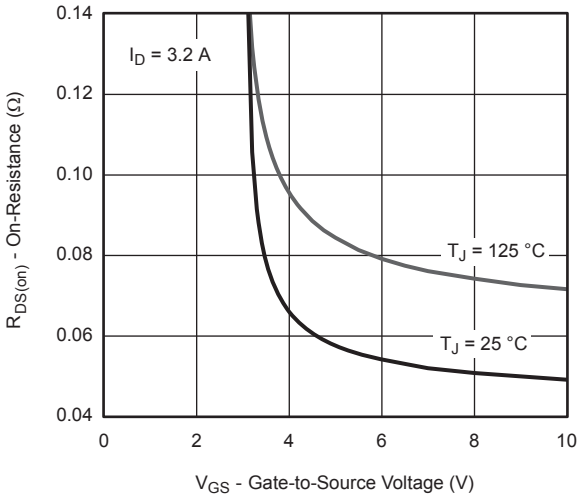


On-Resistance vs. Junction Temperature

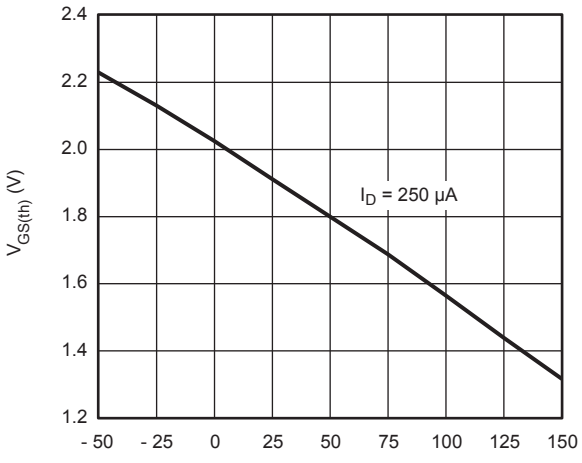
TYPICAL TRANSIENT CHARACTERISTICS



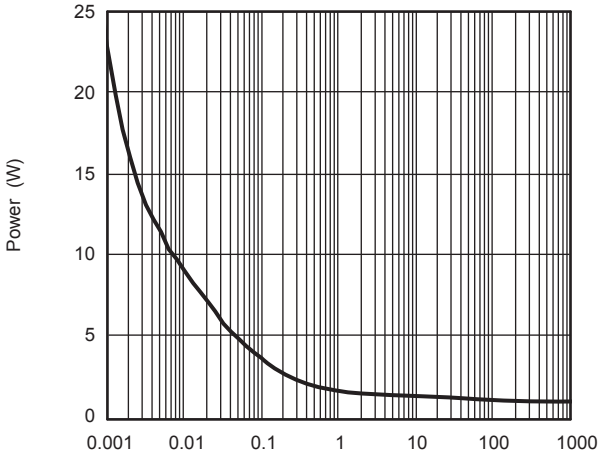
Source-Drain Diode Forward Voltage



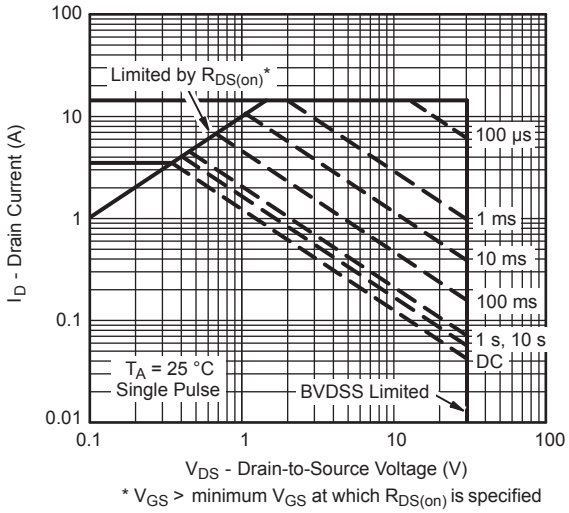
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



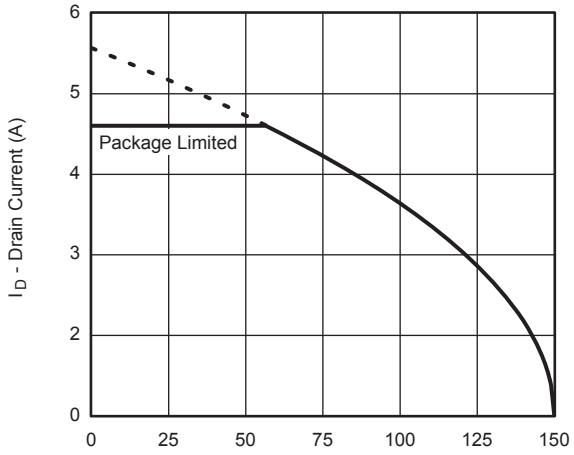
Single Pulse Power



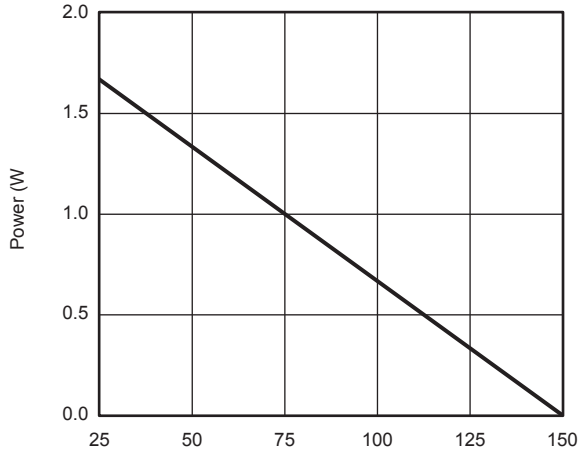
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

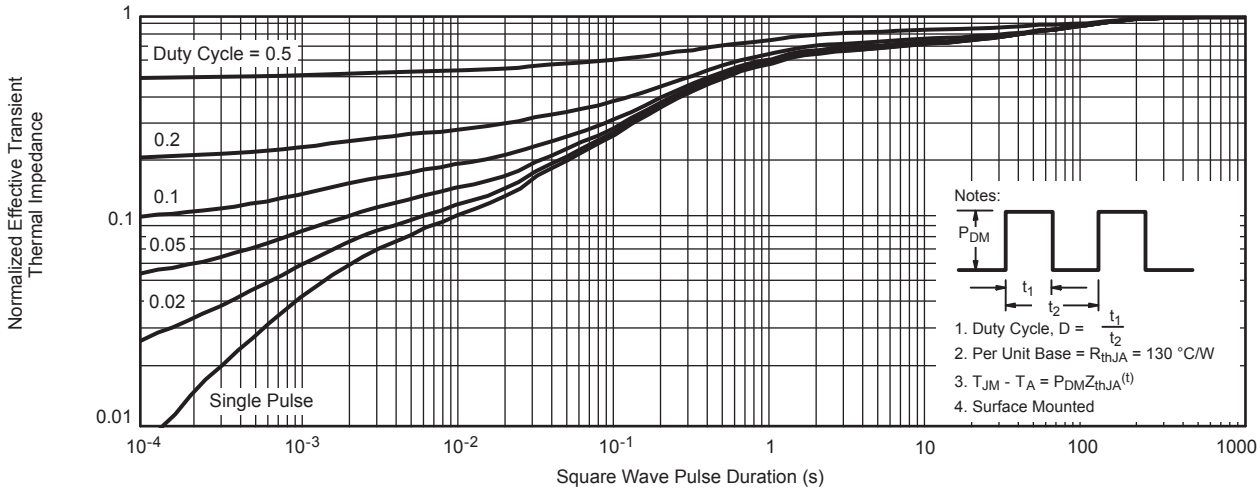
TYPICAL TRANSIENT CHARACTERISTICS



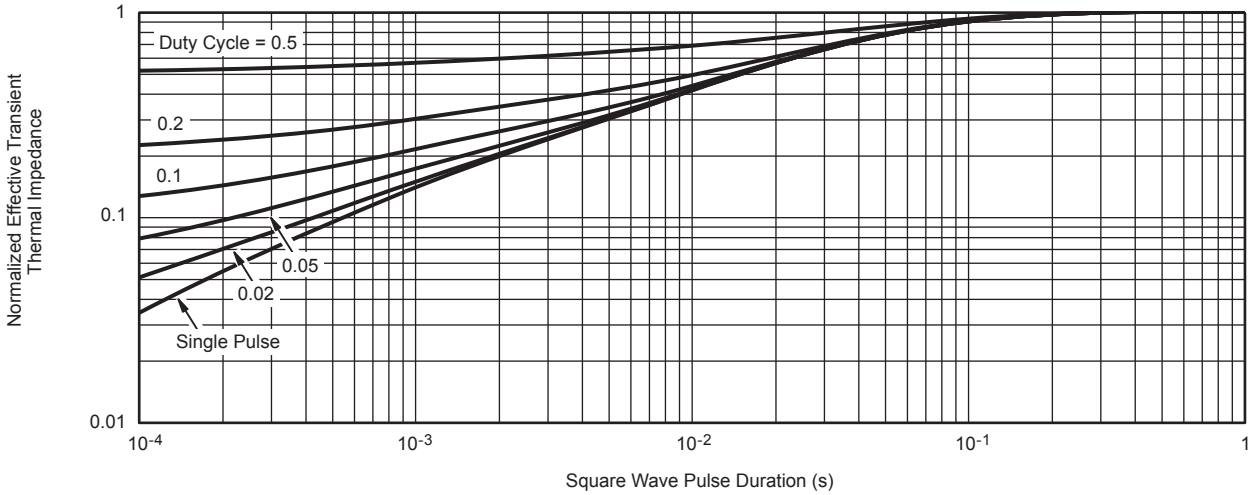
Current Derating*



Power Derating



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

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