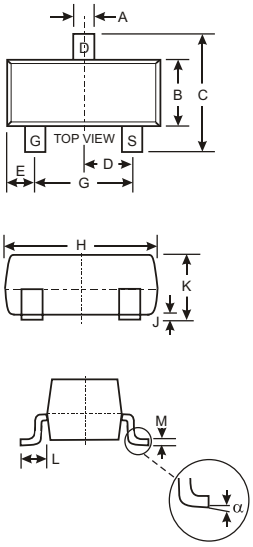
HAICHUANG SEMI

HC3407A

P-CHANNEL ENHANCEMENT MODE MOSFET

Features

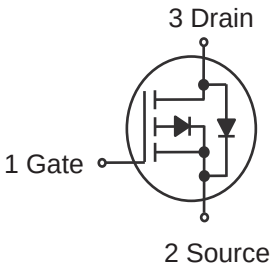
- High power and current handing capability.
- Lead free product is acquired.
- Super high density cell design for extremely low $R_{DS(ON)}$.
- Exceptional on-resistance and maximum DC current capability.
- We declare that the material of product compliance with RoHS requirements.



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:3407 OR A79T.



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}	± 20	V
Drain Current	I_D	-4.1	A
Peak Drain Current [1]	I_{DM}	-20	A
Power Dissipation	P_{tot}	1.4	W
Thermal Resistance from Juntion to Ambient (PCB mounted) [2]	$R_{\theta JA}$	89	℃/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.

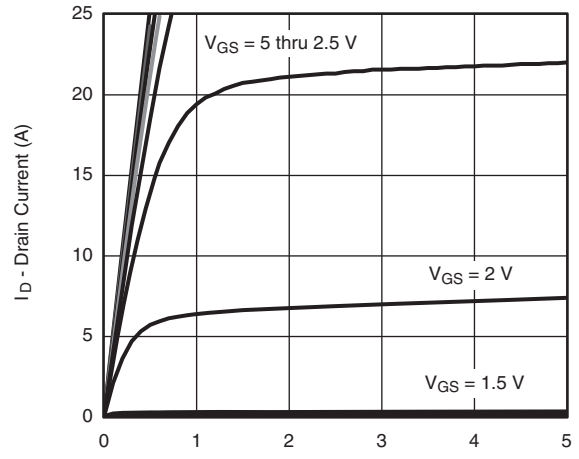
Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	BV_{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} =±20V, V_{DS} = 0V			±100	nA
Drain-source on-resistance (note 1)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.1A		43	65	mΩ
		V_{GS} =-4.5V, I_D =-3.0A		63	90	mΩ
Forward tranconductance (note 1)	g_{FS}	V_{DS} =-5V, I_D =-4A		5.5		S
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.2	V
Diode forward voltage (note 1)	V_{SD}	I_S=-1A,V_{GS}=0V			-1	V
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		700		pF
Output capacitance	C_{oss}			120		pF
Reverse transfer capacitance	C_{rss}			75		pF
Switching Characteristics (note 2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V,V_{DS}=-15V, R_L=3.6Ω,R_{GEN}=3Ω		9		ns
Turn-on rise time	t_r			5		ns
Turn-off delay time	$t_{d(off)}$			28		ns
Turn-off fall time	t_f			13.5		ns

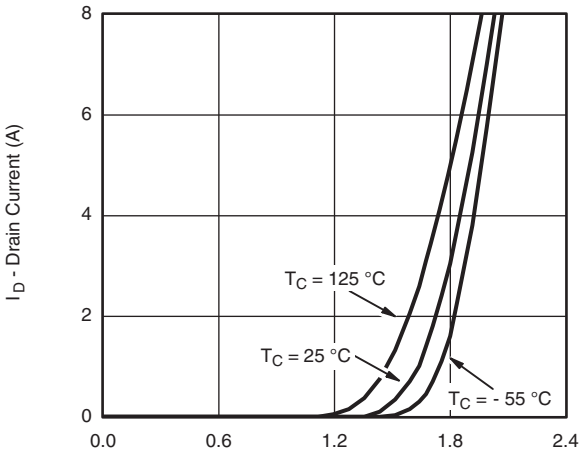
Notes:

1. Pulse test: Pulse width ≤300μs, duty cycle ≤2%.
2. These parameters have no way to verify.

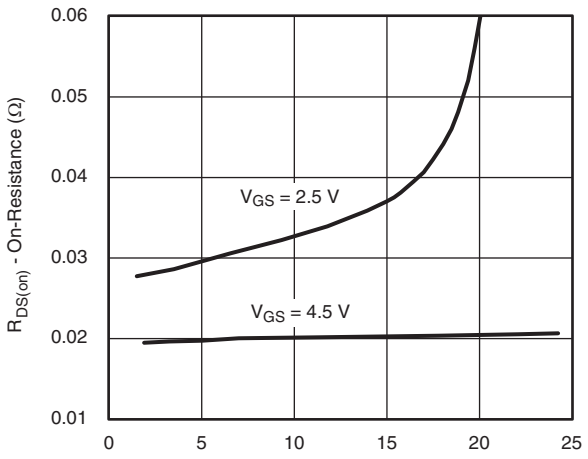
TYPICAL TRANSIENT CHARACTERISTICS



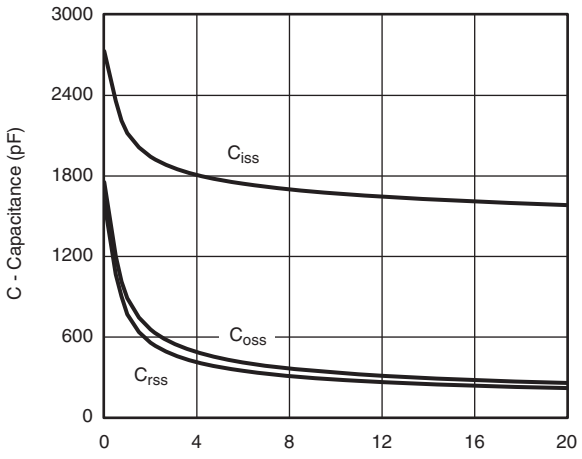
Output Characteristics



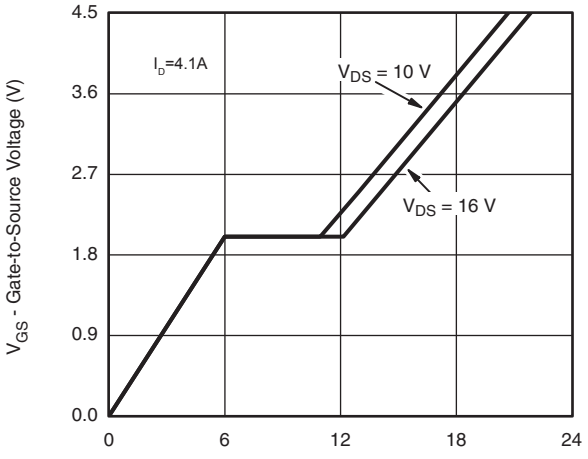
Transfer Characteristics



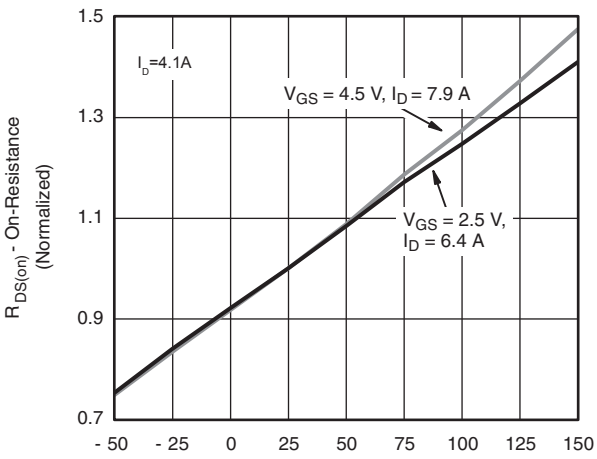
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

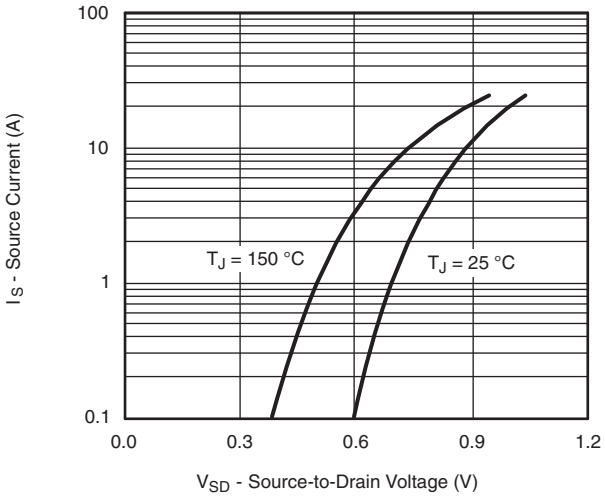


Gate Charge

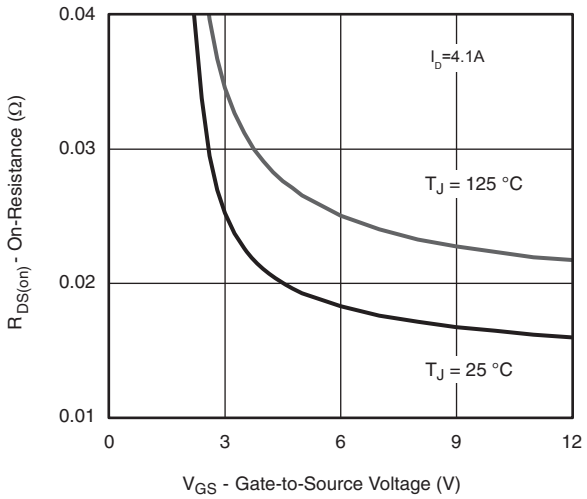


On-Resistance vs. Junction Temperature

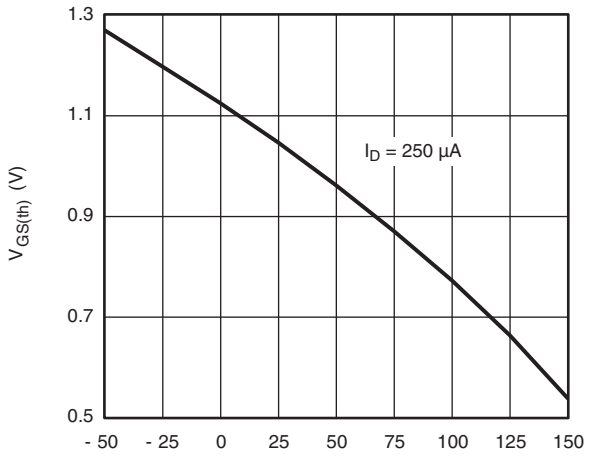
TYPICAL TRANSIENT CHARACTERISTICS



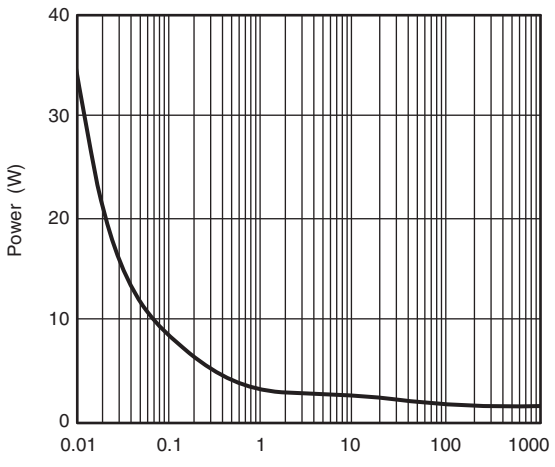
Source-Drain Diode Forward Voltage



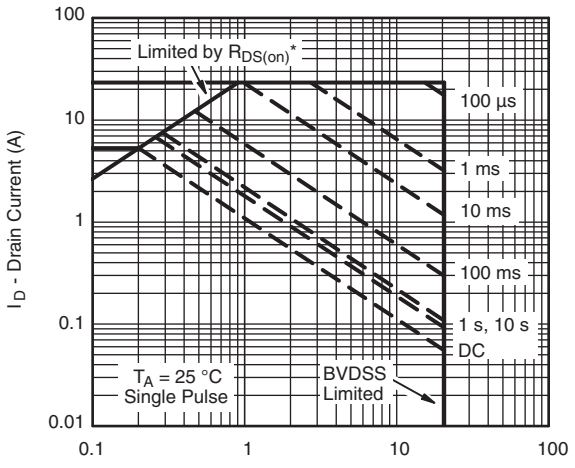
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

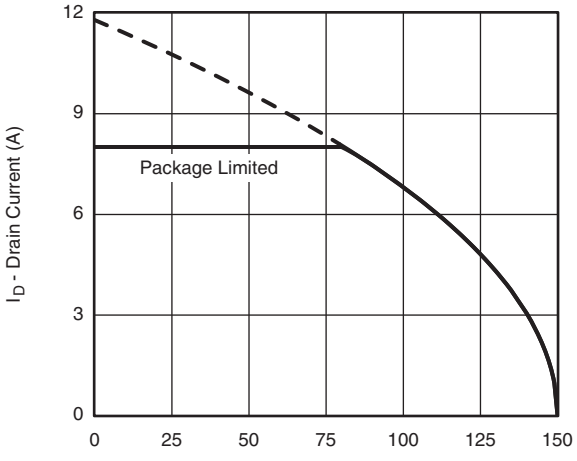


Single Pulse Power



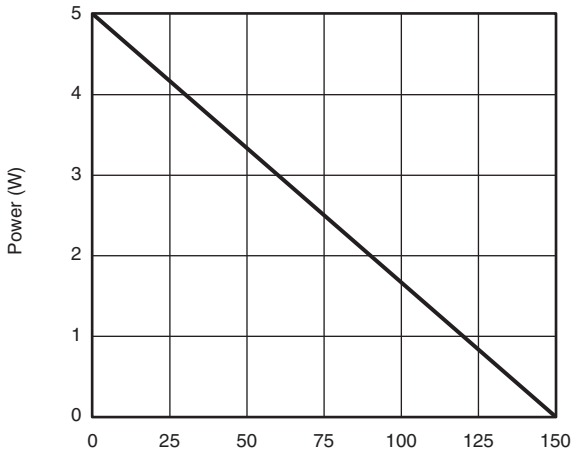
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient



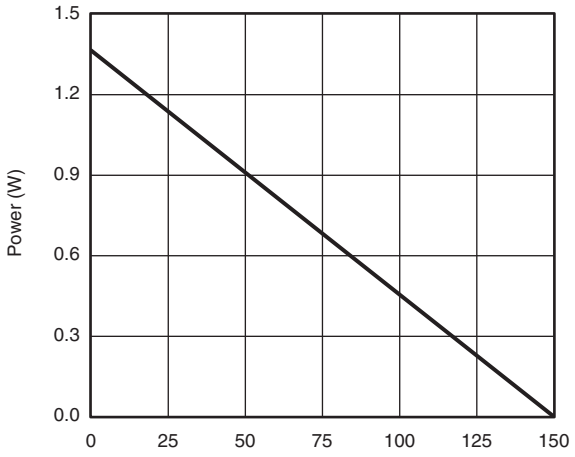
Current Derating*

TYPICAL TRANSIENT CHARACTERISTICS



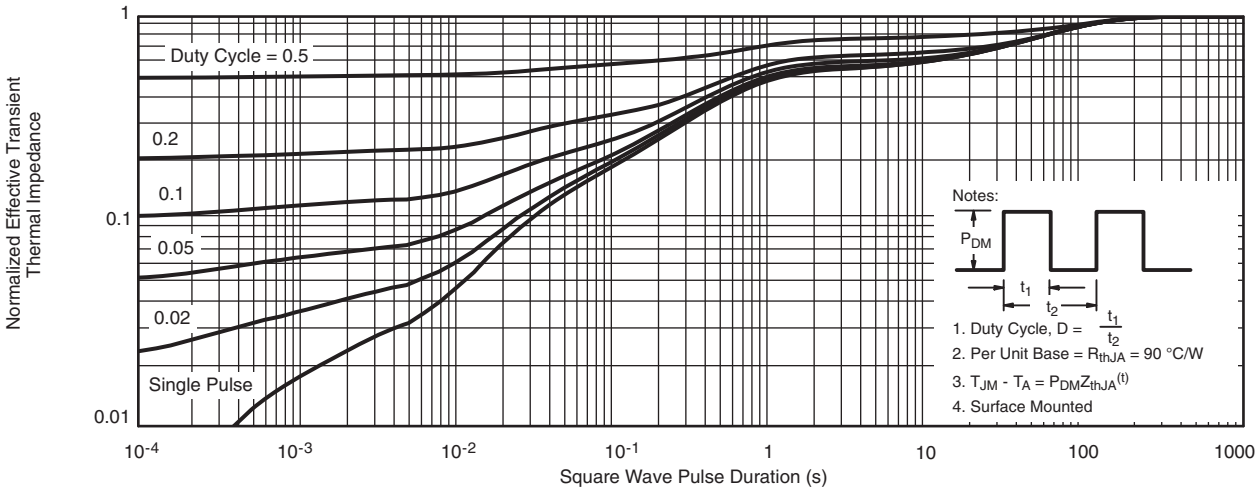
T_C - Case Temperature (°C)

Power Derating, Junction-to-Foot

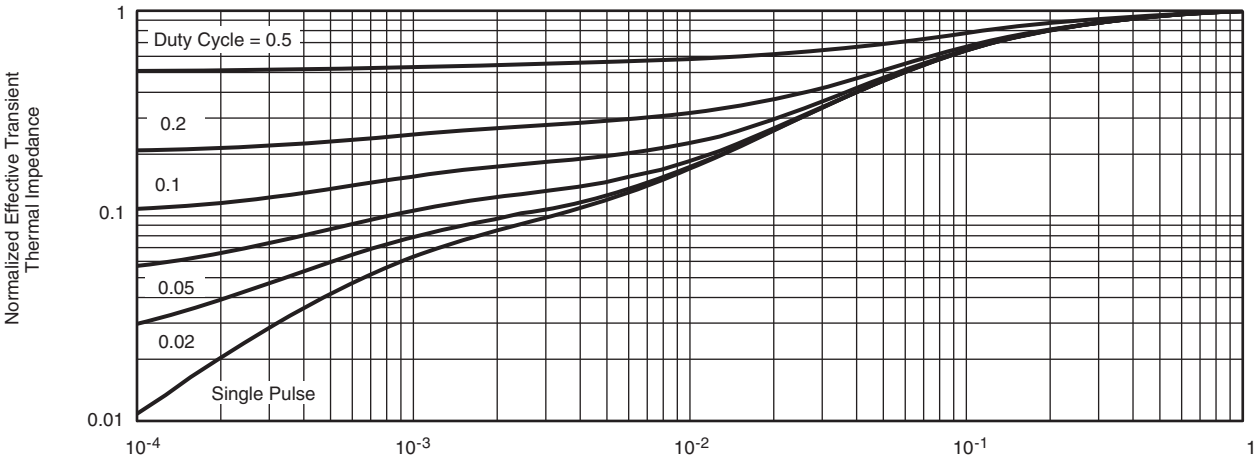


T_A - Ambient Temperature (°C)

Power Derating, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

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