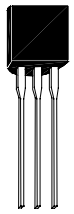
H2N7000

N-Channel Enhancement Mode Transistor



TO-92

Description

The H2N7000 is designed for high voltage, high speed applications such as switching regulators, converters, solenoid and relay drivers.

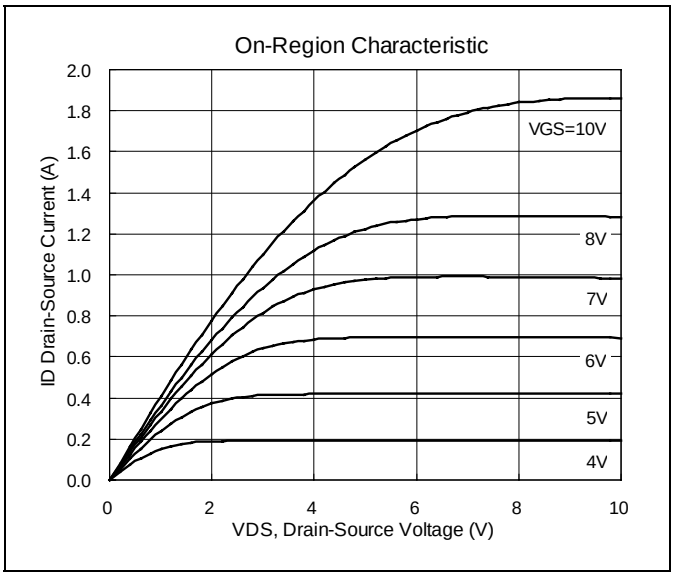
Absolute Maximum Ratings

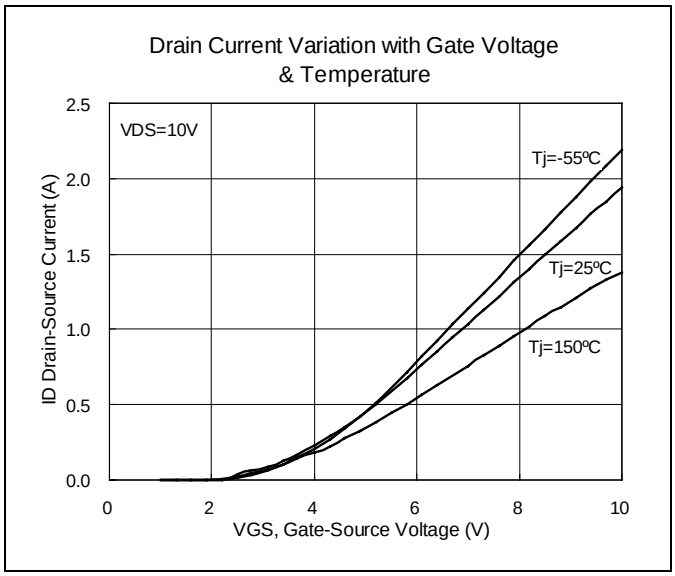
- Maximum Temperatures
  Storage Temperature ..... -55 ~ +150 °C
  Junction Temperature ..... +150 °C Maximum
- Maximum Power Dissipation
  Total Power Dissipation (T_A=25°C) ..... 400 mW
- Maximum Voltages and Currents (T_A=25°C)
  BV_{DSS} Drain to Source Voltage ..... 60 V
  BV_{GSS} Gate to Source Voltage ..... 40 V
  I_D Drain Current ..... 200 mA

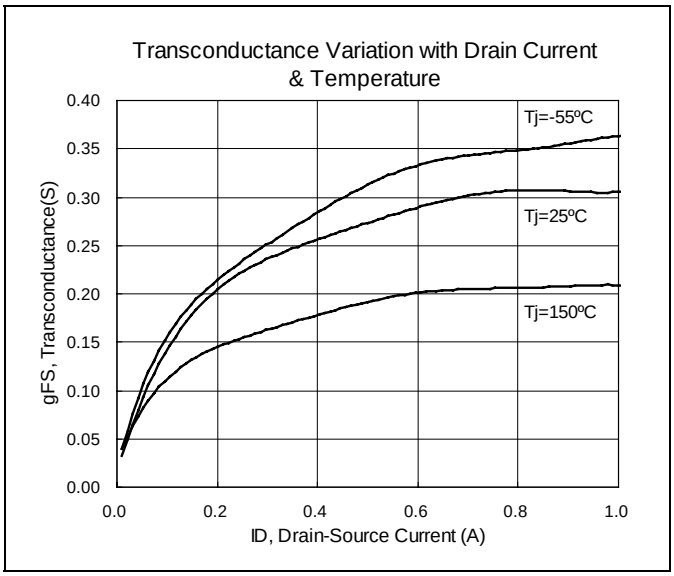
Electrical Characteristics (T_A=25°C)

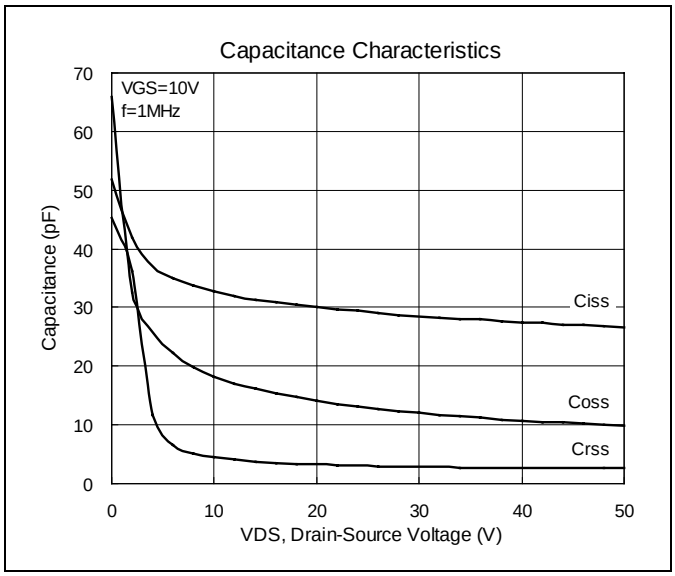
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Drain-Source Voltage	V_{DSS}	I_D=10uA, V_{GS}=0	60	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=48V	-	1	uA
Gate Source Leakage Current	I_{GSS}	V_{GS}=±15V	-	±10	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=3V, I_D=1mA	0.8	3	V
On-State Drain Current	$I_{D(on)}$	V_{GS}=4.5V, V_{DS}=10V	75	-	mA
Static Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=0.5A	-	5	Ω
Static Drain-Source On-State Voltage	$V_{DS(on)1}$	V_{GS}=10V, I_D=0.5A	-	2.5	V
	$V_{DS(on)2}$	V_{GS}=4.5V, I_D=75mA	-	0.4	v

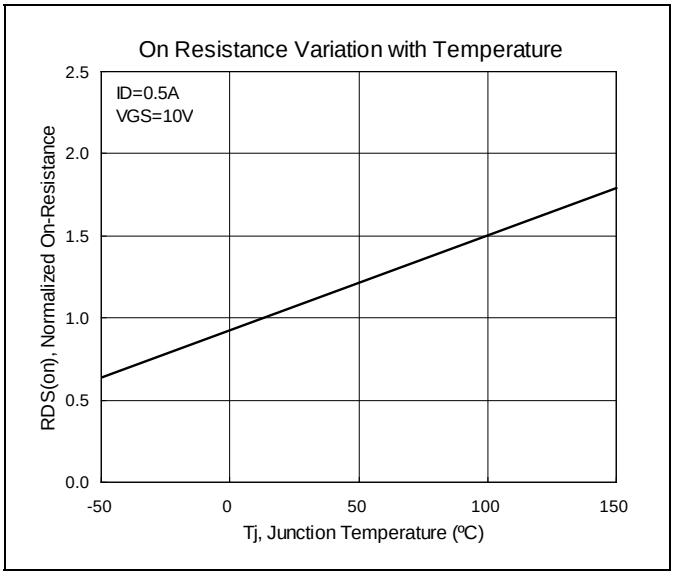
Characteristics Curve

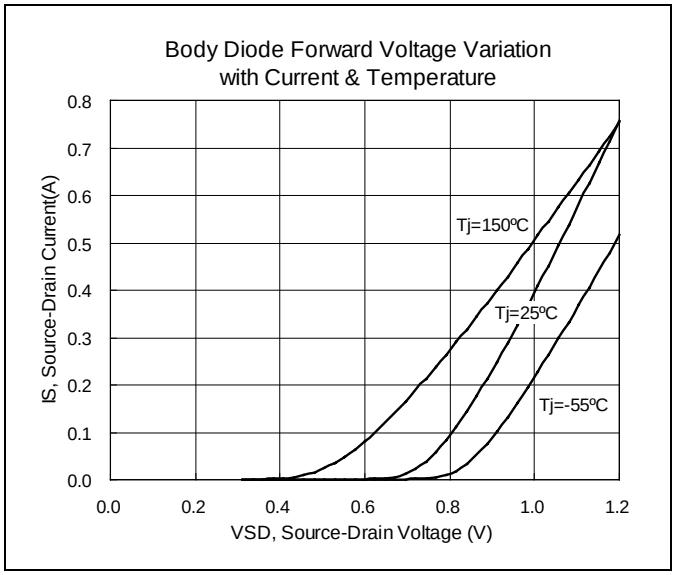


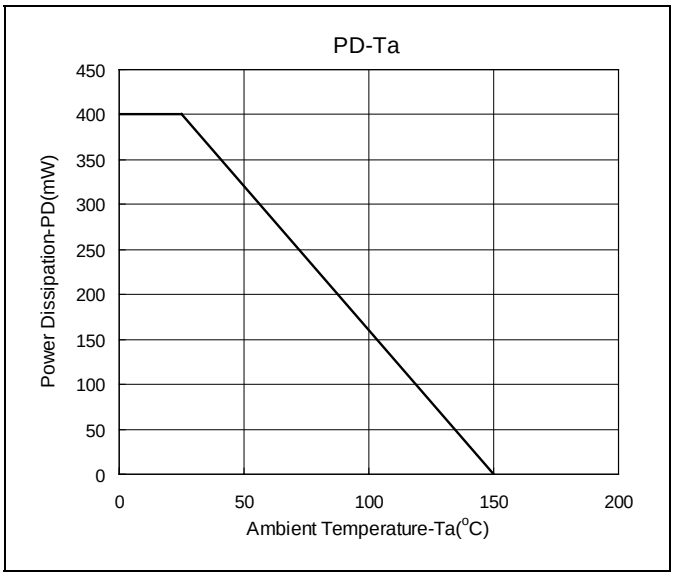




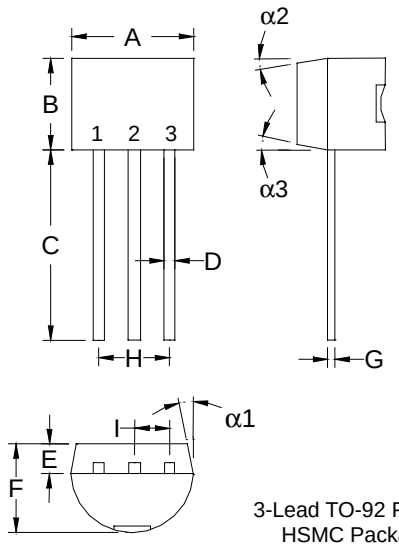






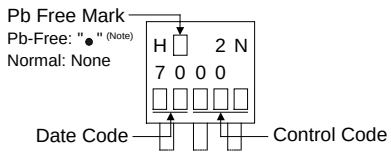

PD-Ta
Power Dissipation-PD(mW)
450
400
350
300
250
200
150
100
50
0
0
50
100
150
200
Ambient Temperature-Ta(°C)

TO-92 Dimension



3-Lead TO-92 Plastic Package
HSMC Package Code: A

Marking:



Note: Green label is used for pb-free packing

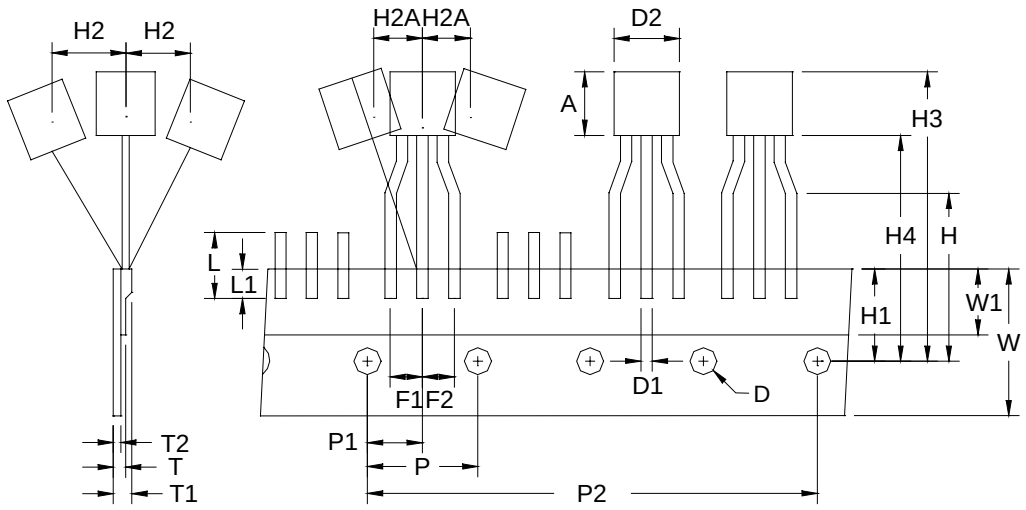
Pin Style: Pin 1.Source 2.Gate 3.Drain

Material:
- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	4.33	4.83
B	4.33	4.83
C	12.70	-
D	0.36	0.56
E	-	*1.27
F	3.36	3.76
G	0.36	0.56
H	-	*2.54
I	-	*1.27
α1	-	*5°
α2	-	*2°
α3	-	*2°

*: Typical, Unit: mm

TO-92 Taping Dimension



DIM	Min.	Max.
A	4.33	4.83
D	3.80	4.20
D1	0.36	0.53
D2	4.33	4.83
F1,F2	2.40	2.90
H	15.50	16.50
H1	8.50	9.50
H2	-	1
H2A	-	1
H3	-	27
H4	-	21
L	-	11
L1	2.50	-
P	12.50	12.90
P1	5.95	6.75
P2	50.30	51.30
T	-	0.55
T1	-	1.42
T2	0.36	0.68
W	17.50	19.00
W1	5.00	7.00

Unit: mm

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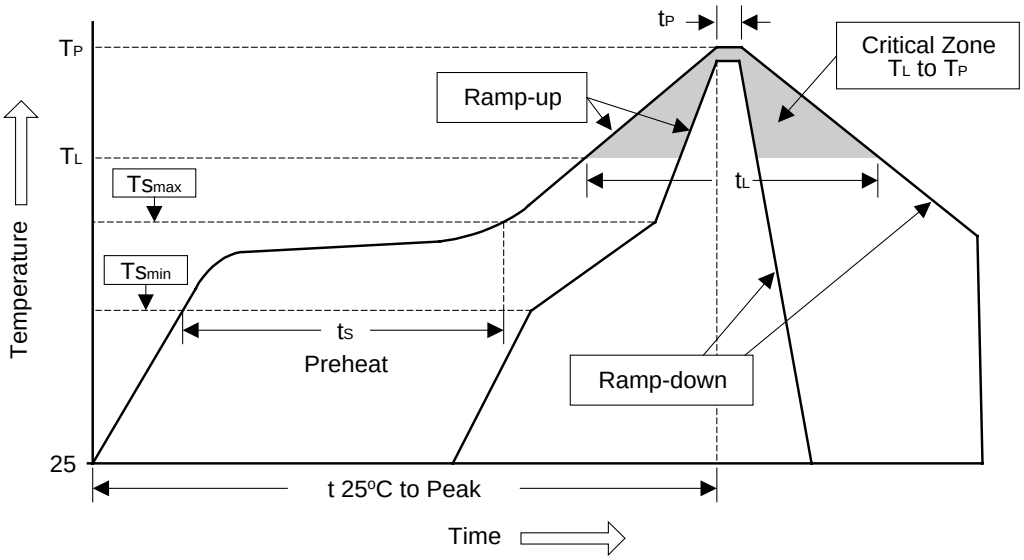
Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%

2. Reflow soldering of surface-mount devices

Figure 1: Temperature profile



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	<3°C/sec	<3°C/sec
Preheat - Temperature Min (Ts_{min}) - Temperature Max (Ts_{max}) - Time (min to max) (ts)	 100°C 150°C 60~120 sec	 150°C 200°C 60~180 sec
Tsmax to T_L - Ramp-up Rate	 <3°C/sec	 <3°C/sec
Time maintained above: - Temperature (T_L) - Time (t_L)	 183°C 60~150 sec	 217°C 60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_P)	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	10sec ±1sec
Pb-Free devices.	260°C ±5°C	10sec ±1sec