HM25N10K

100V_{DS}／±20V_{GS}／25A(I_D) N-Channel Enhancement Mode MOSFET

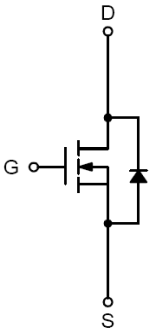
Features

- V_{DSS}=100V／V_{GSS}=±20V／I_D=25A
  $R_{DS(ON)}$=37mΩ(max.)@V_{GS}=10V
- Reliable and Rugged
- Advanced trench process technology
- High Density Cell Design For Low On-Resistance

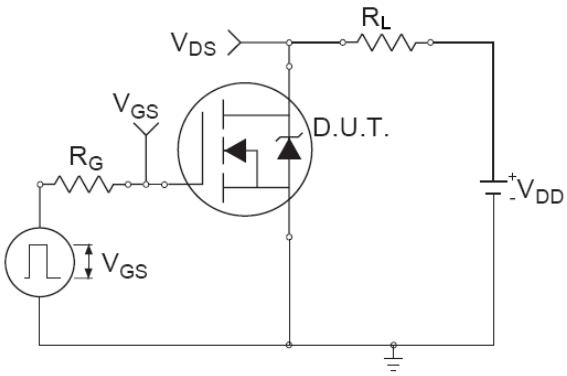
Applications

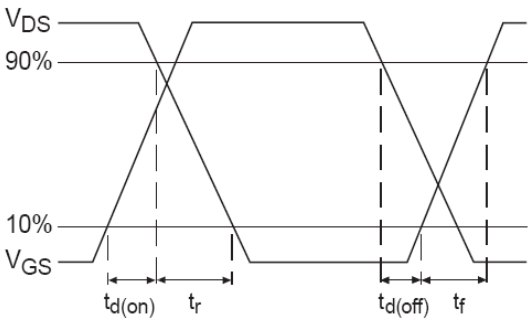
- Power Management in Inverter System
- Boost for LED Backlight

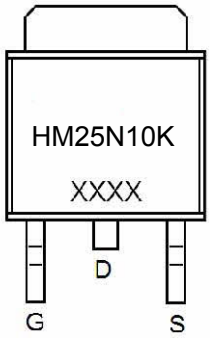
Pin Description



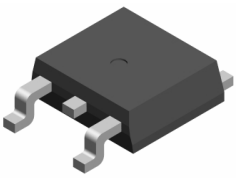
Switching Time Test Circuit and Waveforms







Marking and pin assignment



TO-252-2L top view

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
HM25N10K	HM25N10K	TO-252-2L		-	-

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate –Source Voltage		±20	V
I_D	Continuous Drain Current	T_C=100°C	25	A
		T_C=25°C	16	A
I_{DP}	300us Pulsed Drain Current Tested		75	A
I_S	Diode Continuous Forward Current		25	A
T_J	Operating Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 ~ 150	°C

Electrical Characteristics (TA=25°C unless otherwise noted)

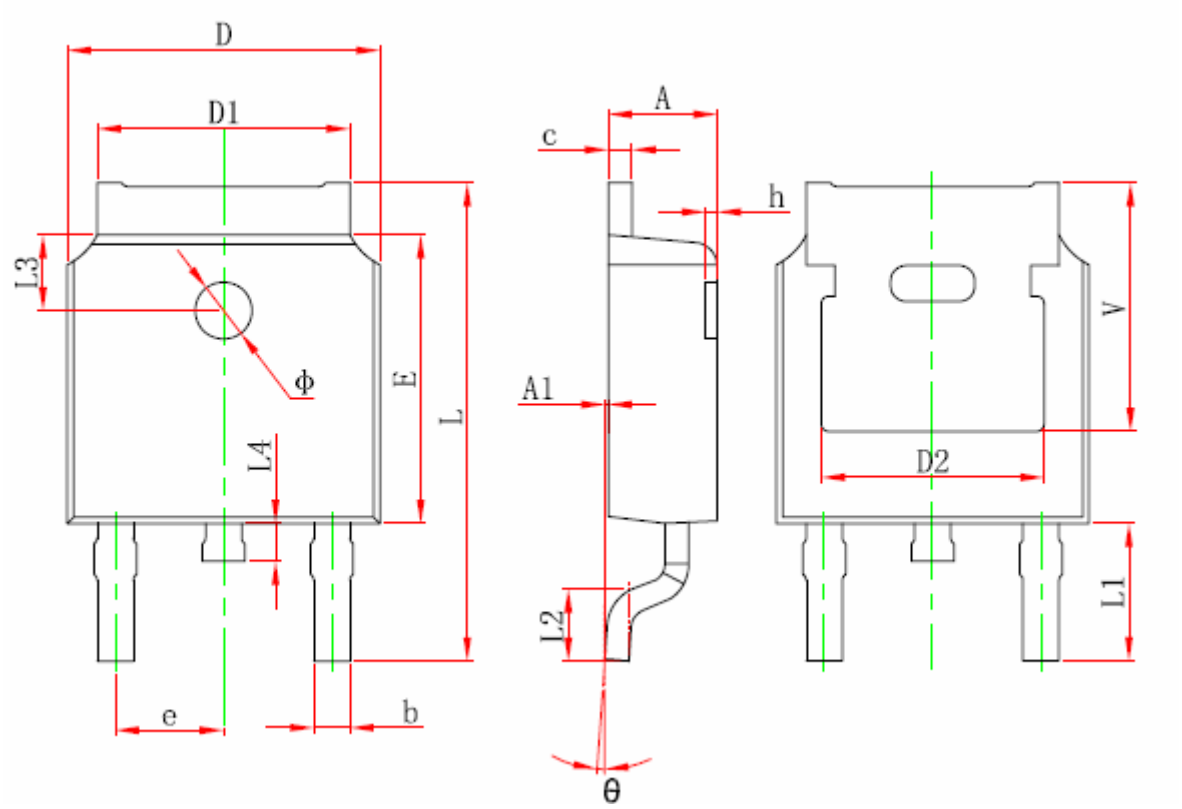
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=80V,V_{GS}=0V			1	uA
		T_J=125°C			100	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	2	3.3	4	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V			±100	nA
$R_{DS(on)}$[1]	Drain-Source On-Resistance	V_{GS}=10V, I_D=12A		33	37	mΩ
Diode Characteristics						
V_{SD}[1]	Diode Forward Voltage	I_{SD}=12A,V_{GS}=0V			1.1	V
t_{rr}	Reverse Recovery Time	I_{SD}=12A,		60		ns
Q_{rr}	Reverse Recovery Charge	di_F/dt=100A/us		90		nC
Dynamic Characteristics[2]						
R_G	Gate Resistance	V_{GS}=0V, V_{DS}=0V, Frequency=1MHz		1.4		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=30V Frequency=1MHz		2000		pF
C_{oss}	Output Capacitance			450		
C_{rss}	Reverse Transfer Capacitance			260		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=50V, R_L=30Ω I_D=1.0A, V_{GEN}=10V R_G=6Ω		25		ns
t_r	Turn-On Rise Time			18		
$t_{d(off)}$	Turn-Off Delay Time			60		
t_f	Turn-Off Fall Time			78		
Gate Charge Characteristics[2]						
Q_g	Total Gate Charge	V_{DS}=50V, V_{GS}=10V I_D=12A		50		nC
Q_{gs}	Gate-Source Charge			13.5		
Q_{gd}	Gate-Drain Charge			11		

Note:

1: Pulse test ; pulse width ≦ 300ns, duty cycle ≦ 2%.

2: Guaranteed by design, not subject to production testing.

TO-252-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

Attention:

- Any and all H&M SEMI products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your H&M SEMI representative nearest you before using any H&M SEMI products described or contained herein in such applications.
- H&M SEMI assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all H&M SEMI products described or contained herein.
- Specifications of any and all H&M SEMI products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- H&M Semiconductor CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all H&M SEMI products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of H&M Semiconductor CO.,LTD.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. H&M SEMI believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the H&M SEMI product that you intend to use.
- This catalog provides information as of Sep.2010. Specifications and information herein are subject to change without notice.