

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

L293D-L293DD(MS)

Product specification

DESCRIPTION

The Device is a monolithic integrated high volt-age, high current four channel driver designed to accept standard DTL or TTL logic levels and drive inductive loads (such as relays solenoides, DC and stepping motors) and switching power tran- sistors. To simplify use as two bridges each pair of chan-nels is equipped with an enable input. A separate supply input is provided for the logic, allowing op-eration at a lower voltage and internal clamp di-odes are included.


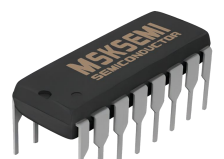


This device is suitable for use in switching appli-cations at frequencies up to 5 kHz.

The L293D is assembled in a 16 lead plastic package which has 4 center pins connected to- gether and used for heatsinking

The L293DD is assembled in a 20 lead surface mount which has 8 center pins connected to- gether and used for heatsinking.

- 600mA OUTPUT CURRENT CAPABILITY PER CHANNEL
- 1.2A PEAK OUTPUT CURRENT (non repeti- tive) PER CHANNEL
- ENABLE FACILITY
- OVERTEMPERATURE PROTECTION
- LOGICAL "0" INPUT VOLTAGE UP TO 1.5 V (HIGH NOISE IMMUNITY)
- INTERNAL CLAMP DIODES

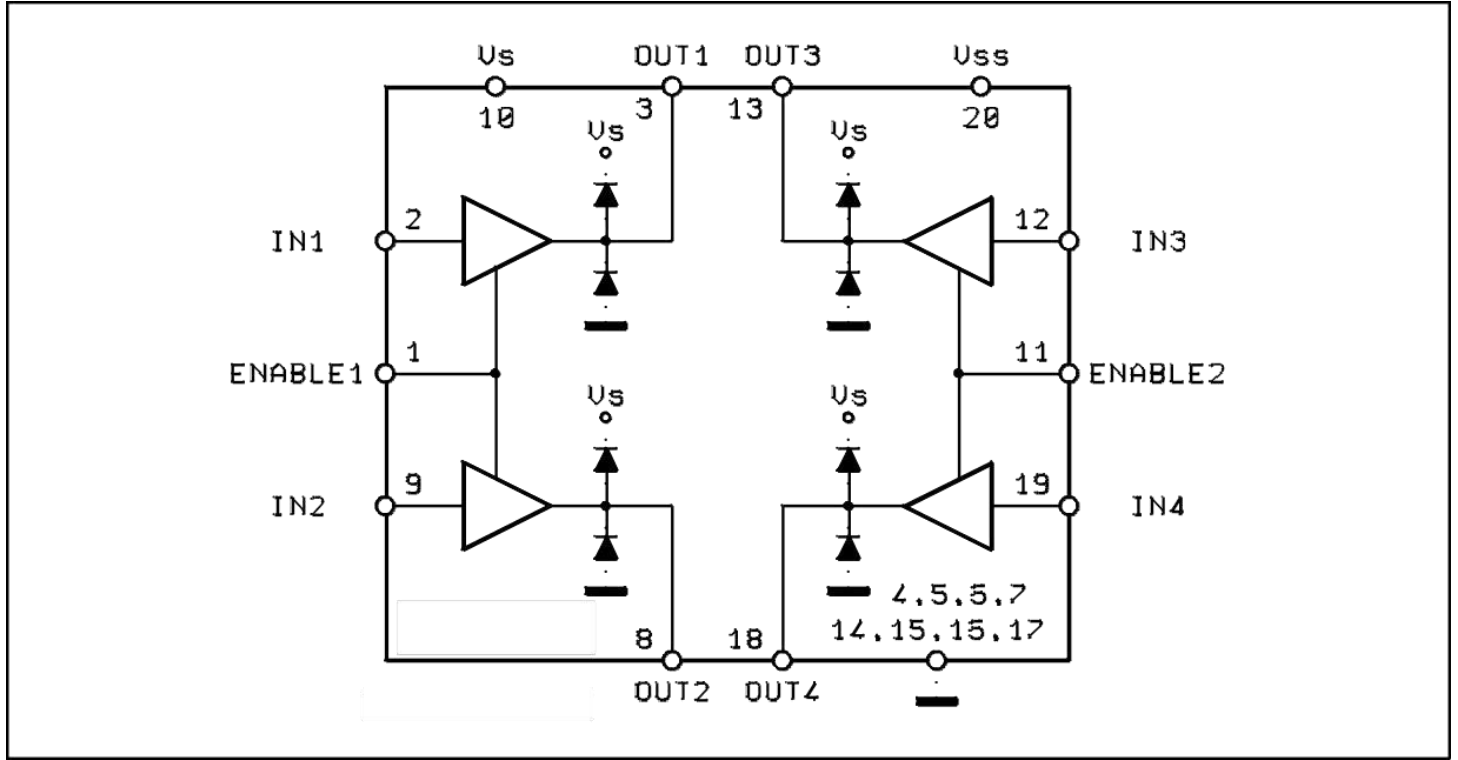
Reference News

PACKAGE OUTLINE		Marking	
			
SOP-20	DIP-16	SOP-20	DIP-16

ordering information

P/N	PKG	QTY
L293DD(MS)	SOP-20	1000/tray
L293D(MS)	DIP-16	25/One tube 1000/a box of

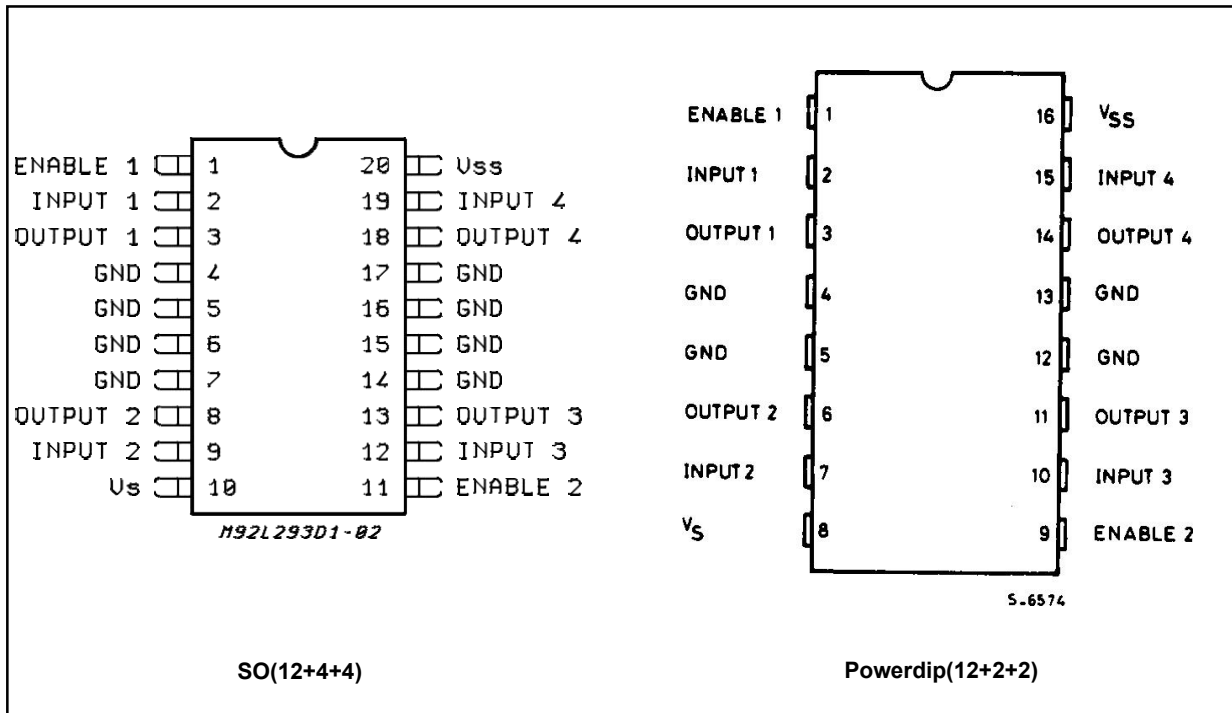
BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	36	V
V_{SS}	Logic Supply Voltage	36	V
V_i	Input Voltage	7	V
V_{en}	Enable Voltage	7	V
I_o	Peak Output Current (100 μ s non repetitive)	1.2	A
P_{tot}	Total Power Dissipation at $T_{pins} = 90^\circ\text{C}$	4	W
T_{stg}, T_j	Storage and Junction Temperature	- 40 to 150	$^\circ\text{C}$

PIN CONNECTIONS (Top view)



THERMAL DATA

Symbol	Decription	DIP	SO	Unit
Rth j-pins	Thermal Resistance Junction-pins max.	-	14	°CW
Rth j-amb	Thermal Resistance junction-ambient max.	80	50 (*)	°CW
Rth j-case	Thermal Resistance Junction-case max.	14	-	

(*) With 6sq. cm on board heatsink.

ELECTRICAL CHARACTERISTICS (for each channel, $V_S = 24V$, $V_{SS} = 5V$, $T_{amb} = 25^\circ C$, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply Voltage (pin 10)		V_{SS}		36	V
V_{SS}	Logic Supply Voltage (pin 20)		4.5		36	V
I_S	Total Quiescent Supply Current (pin 10)	$V_i = L ; I_o = 0 ; V_{en} = H$		2	6	mA
		$V_i = H ; I_o = 0 ; V_{en} = H$		16	24	mA
		$V_{en} = L$			4	mA
I_{SS}	Total Quiescent Logic Supply Current (pin 20)	$V_i = L ; I_o = 0 ; V_{en} = H$		44	60	mA
		$V_i = H ; I_o = 0 ; V_{en} = H$		16	22	mA
		$V_{en} = L$		16	24	mA
V_{IL}	Input Low Voltage (pin 2, 9, 12, 19)		-0.3		1.5	V
V_{IH}	Input High Voltage (pin 2, 9, 12, 19)	$V_{SS} < 7V$	2.3		V_{SS}	V
		$V_{SS} > 7V$	2.3		7	V
I_{IL}	Low Voltage Input Current (pin 2, 9, 12, 19)	$V_{IL} = 1.5V$			-10	μA
I_{IH}	High Voltage Input Current (pin 2, 9, 12, 19)	$2.3V < V_{IH} < V_{SS} - 0.6V$		30	100	μA
V_{enL}	Enable Low Voltage (pin 1, 11)		-0.3		1.5	V
V_{enH}	Enable High Voltage (pin 1, 11)	$V_{SS} < 7V$	2.3		V_{SS}	V
		$V_{SS} > 7V$	2.3		7	V
I_{enL}	Low Voltage Enable Current (pin 1, 11)	$V_{enL} = 1.5V$		-30	-100	μA
I_{enH}	High Voltage Enable Current (pin 1, 11)	$2.3V < V_{enH} < V_{SS} - 0.6V$			± 10	μA
$V_{CE(sat)H}$	Source Output Saturation Voltage (pins 3, 8, 13, 18)	$I_o = -0.6A$		1.4	1.8	V
$V_{CE(sat)L}$	Sink Output Saturation Voltage (pins 3, 8, 13, 18)	$I_o = +0.6A$		1.2	1.8	V
V_F	Clamp Diode Forward Voltage	$I_o = 600nA$		1.3		V
t_r	Rise Time (*)	0.1 to 0.9 V_o		250		ns
t_f	Fall Time (*)	0.9 to 0.1 V_o		250		ns
t_{on}	Turn-on Delay (*)	0.5 V_i to 0.5 V_o		750		ns
t_{off}	Turn-off Delay (*)	0.5 V_i to 0.5 V_o		200		ns

(*) See fig. 1.

TRUTH TABLE (one channel)

Input	Enable (*)	Output
H	H	H
L	H	L
H	L	Z
L	L	Z

Z = High output impedance

(*) Relative to the considered channel

Figure 1: Switching Times

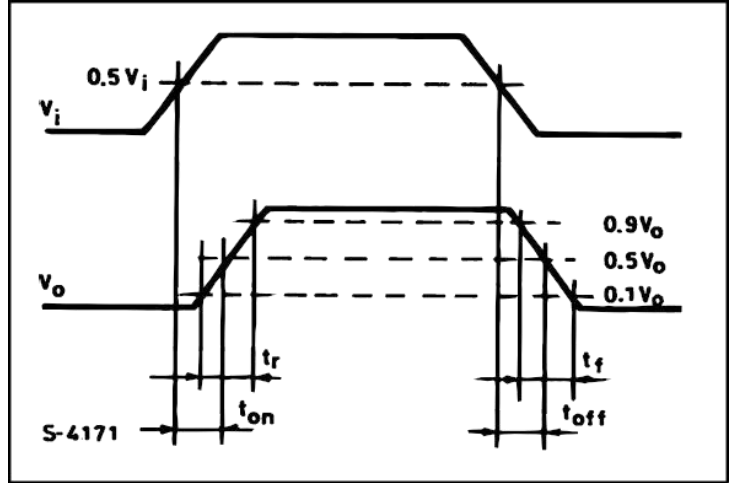
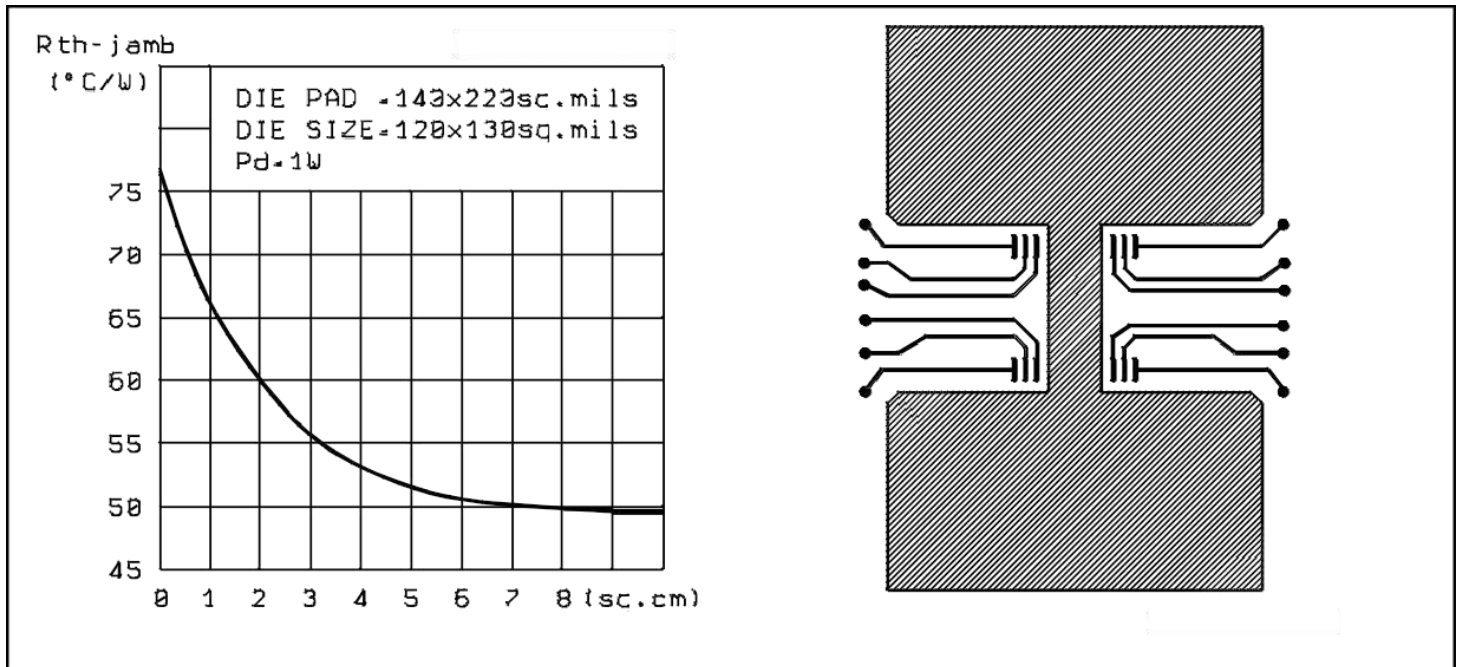
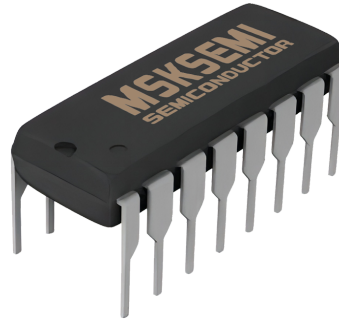


Figure 2: Junction to ambient thermal resistance vs. area on board heatsink (SO12+4+4 package)

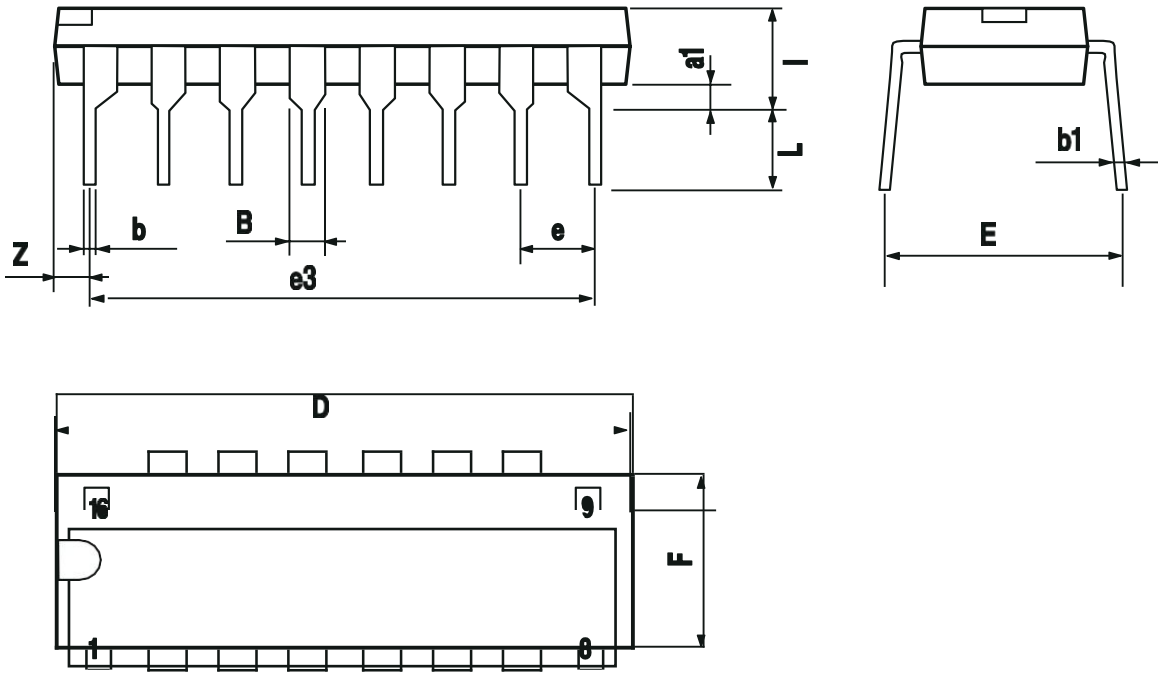


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.85		1.40	0.033		0.055
b		0.50			0.020	
b1	0.38		0.50	0.015		0.020
D			20.0			0.787
E		8.80			0.346	
e		2.54			0.100	
e3		17.78			0.700	
F			7.10			0.280
I			5.10			0.201
L		3.30			0.130	
Z			1.27			0.050

OUTLINE AND MECHANICAL DATA

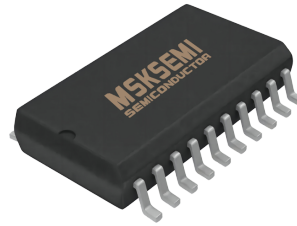


DIP-16

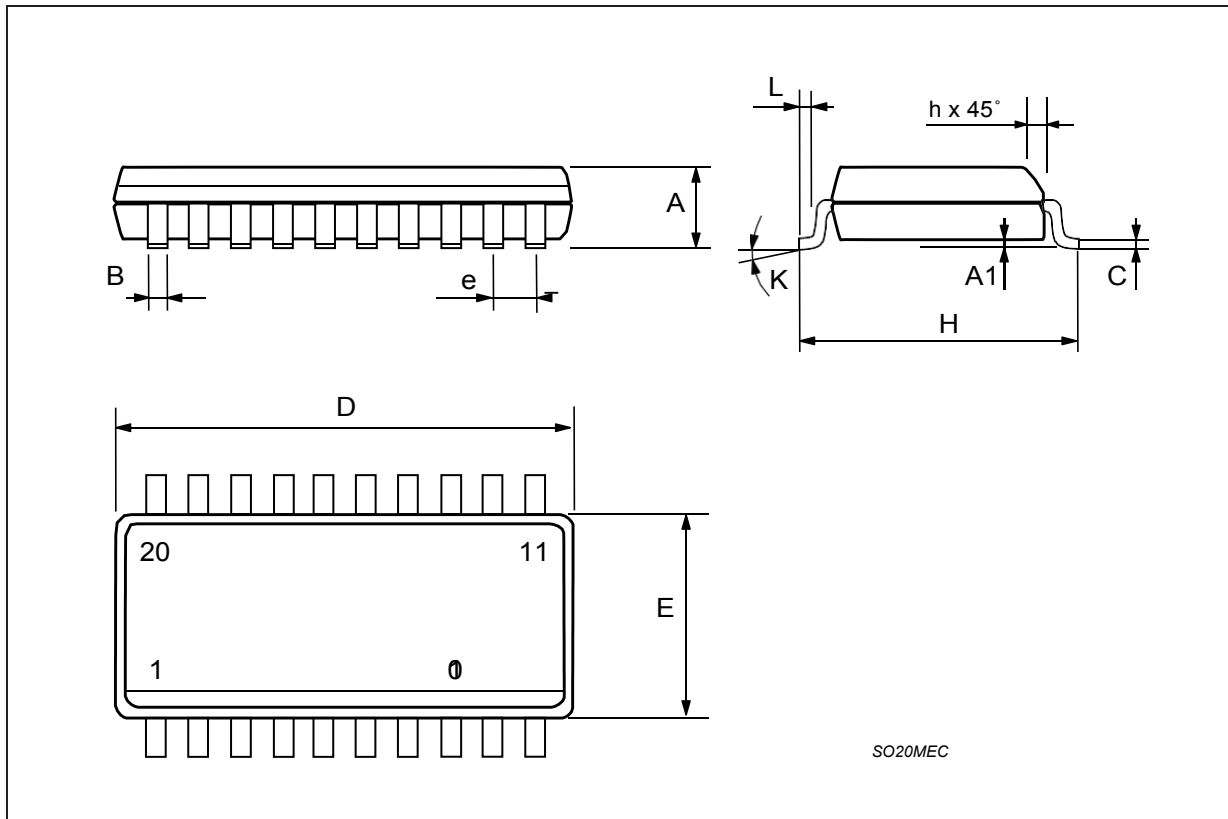


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.35		2.65	0.093		0.104
A1	0.1		0.3	0.004		0.012
B	0.33		0.51	0.013		0.020
C	0.23		0.32	0.009		0.013
D	12.6		13	0.496		0.512
E	7.4		7.6	0.291		0.299
e		1.27			0.050	
H	10		10.65	0.394		0.419
h	0.25		0.75	0.010		0.030
L	0.4		1.27	0.016		0.050
K	0° (min.)8° (max.)					

OUTLINE AND MECHANICAL DATA



SOP-20



Attention

- Any and all MSKSEMI Semiconductor 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 MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor 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 MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor 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.
- MSKSEMI Semiconductor 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 MSKSEMI Semiconductor 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 MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringement 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 MSKSEMI Semiconductor product that you intend to use.

单击下面可查看定价，库存，交付和生命周期等信息

[>>MSKSEMI\(美森科\)](#)