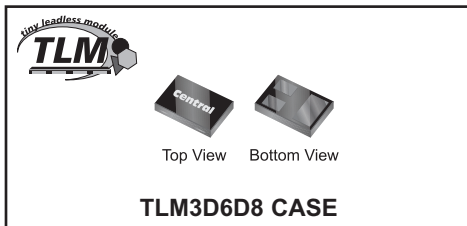


**CTLDM3590****SURFACE MOUNT  
N-CHANNEL  
ENHANCEMENT-MODE  
SILICON MOSFET**
[www.centrasemi.com](http://www.centrasemi.com)
**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CTLDM3590 is an enhancement-mode N-channel MOSFET designed for applications including high speed pulsed amplifiers and drivers. This MOSFET has beneficially low  $r_{DS(ON)}$ , low threshold voltage, and very low gate charge characteristics.

**MARKING CODE: 1****FEATURES:**

- ESD protection up to 2kV
- Power dissipation: 125mW
- Low  $r_{DS(ON)}$
- Low threshold voltage
- Ultra small, ultra low profile 0.6mm x 0.8mm x 0.4mm TLM™ leadless surface mount package

**APPLICATIONS:**

- Load/Power Switches
- Boost/Buck Converters
- Battery Charging/Power Management

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

Drain-Source Voltage
Gate-Source Voltage
Continuous Drain Current (Steady State)
Pulsed Drain Current, $t_p=10\mu\text{s}$
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL		UNITS
$V_{DS}$	20	V
$V_{GS}$	8.0	V
$I_D$	160	mA
$I_D$	800	mA
$P_D$	125	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\Theta_{JA}$	1000	$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

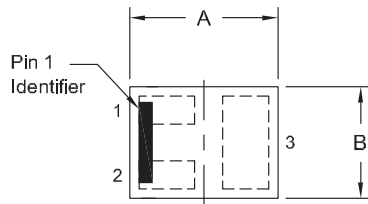
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{GSSF}, I_{GSSR}$	$V_{GS}=5.0\text{V}, V_{DS}=0$			100	nA
$I_{DSS}$	$V_{DS}=5.0\text{V}, V_{GS}=0$			50	nA
$I_{DSS}$	$V_{DS}=16\text{V}, V_{GS}=0$			100	nA
$BV_{DSS}$	$V_{GS}=0, I_D=250\mu\text{A}$	20			V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.4		1.0	V
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=100\text{mA}$		1.5	3.0	$\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=50\text{mA}$		2.0	4.0	$\Omega$
$r_{DS(ON)}$	$V_{GS}=1.8\text{V}, I_D=20\text{mA}$		3.0	6.0	$\Omega$
$r_{DS(ON)}$	$V_{GS}=1.5\text{V}, I_D=10\text{mA}$		4.0	10	$\Omega$
$r_{DS(ON)}$	$V_{GS}=1.2\text{V}, I_D=1.0\text{mA}$		7.0		$\Omega$
$Q_g(\text{tot})$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$		0.458		nC
$Q_{gs}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$		0.176		nC
$Q_{gd}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$		0.138		nC
$g_{FS}$	$V_{DS}=5.0\text{V}, I_D=125\text{mA}$		1.3		S
$C_{rss}$	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$		2.2		pF
$C_{iss}$	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$		9.0		pF
$C_{oss}$	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$		3.0		pF
$t_{on}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=200\text{mA}$		25		ns
$t_{off}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=200\text{mA}$		85		ns

R3 (27-September 2012)

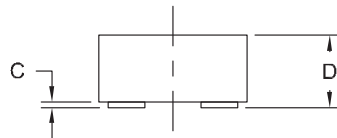
**CTLDM3590**  
**SURFACE MOUNT**  
**N-CHANNEL**  
**ENHANCEMENT-MODE**  
**SILICON MOSFET**



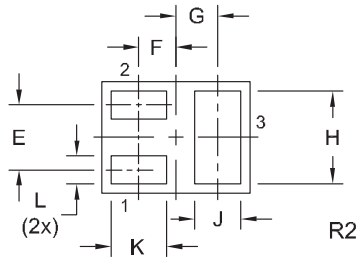
**TLM3D6D8 CASE - MECHANICAL OUTLINE**



TOP VIEW



SIDE VIEW

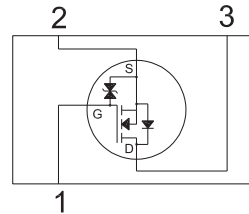


BOTTOM VIEW

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.029	0.034	0.75	0.85
B	0.021	0.026	0.55	0.65
C	0.000	0.002	0.00	0.05
D	0.012	0.016	0.31	0.40
E	0.014		0.35	
F	0.008		0.20	
G	0.009		0.225	
H	0.017	0.022	0.45	0.55
J	0.008	0.012	0.20	0.30
K	0.010	0.014	0.25	0.35
L	0.004	0.008	0.10	0.20

TLM3D6D8 (REV: R2)

**PIN CONFIGURATION**  
(Bottom View)



**LEAD CODE:**

- 1) Gate
- 2) Source
- 3) Drain

**MARKING CODE: 1**

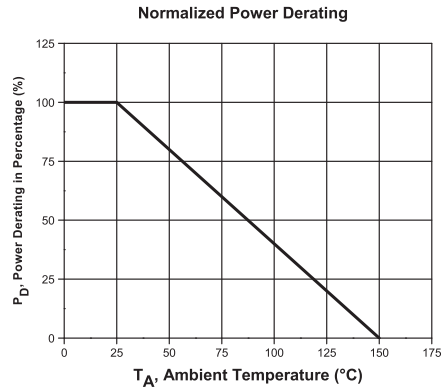
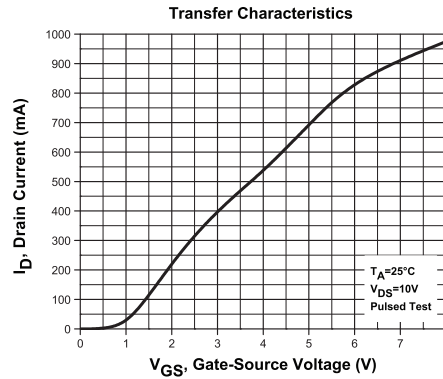
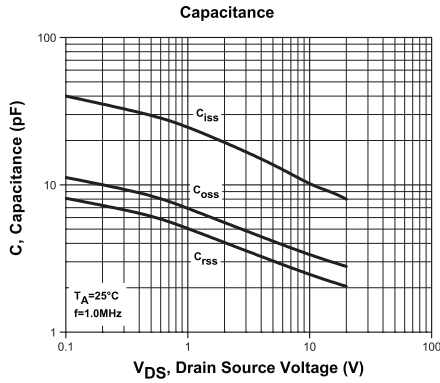
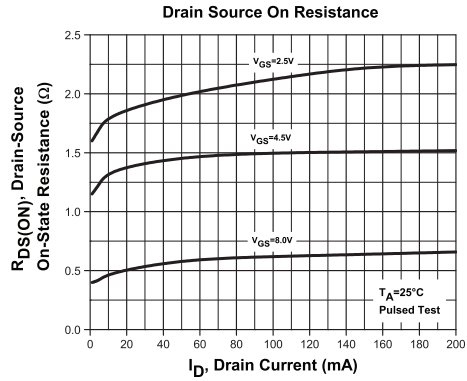
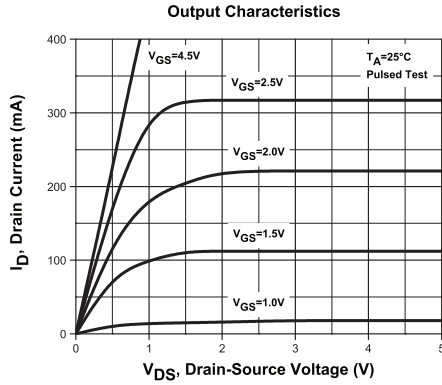
R3 (27-September 2012)

CTLDM3590



**SURFACE MOUNT  
N-CHANNEL  
ENHANCEMENT-MODE  
SILICON MOSFET**

**TYPICAL ELECTRICAL CHARACTERISTICS**



R3 (27-September 2012)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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[www.centrasemi.com](http://www.centrasemi.com)

**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

**Worldwide Distributors:**  
[www.centrasemi.com/wwdistributors](http://www.centrasemi.com/wwdistributors)

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For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)



<http://www.centralsemi.com>

# Product End of Life Notification

<b>PDN ID:</b>	PDN01006
<b>Notification Date:</b>	10/21/15
<b>Last Buy Date:</b>	4/21/16
<b>Last Shipment Date</b>	10/21/16

Summary: All devices manufactured in the TLM3D6D8 package are discontinued and is now classified as End of Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by various manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's Product Management Process. Any replacement product will be noted below. The effective date for placing the last purchase order will be six(6) months from the date of this notice and twelve(12) months from the notice date for final shipments; this may be extended if inventory is available.

<u>Central Part Number</u>	<u>Replacement</u>
CTLDM3590 BK	N/A
CTLDM3590 TR	N/A
CTLDM7590 BK	N/A
CTLDM7590 TR	N/A

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. Please email your requests to [engineering@centralsemi.com](mailto:engineering@centralsemi.com).

**DISCLAIMER:** This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.