

General Description

The 25N50 is fabricated using an advanced high voltage MOSFET process that is designed to provide excellent RDS(ON) . These devices are well suited for high efficient switched mode power supplies and active power factor correction.

Features

- Low on-resistance
- Fast Switching
- RoHS Compliant

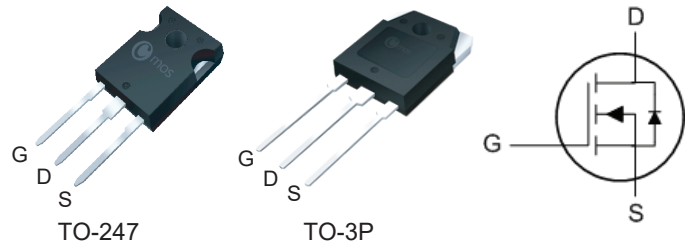
Product Summary

BVDSS	RDSON	ID
500V	0.18Ω	25A

Applications

- DC-AC converters
- SMPS Power
- UPS (Uninterruptible Power Supply)

TO-247/3P Pin Configuration



Type	Package	Marking
CMH25N50	TO-247	CMH25N50
CMA25N50	TO-3P	CMA25N50

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	500	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	25	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	16	A
I_{DM}	Pulsed Drain Current ¹	75	A
EAS	Single Pulse Avalanche Energy ²	850	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	300	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	40	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.43	°C/W

Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	500	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =10A	---	---	0.18	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =500V , V _{GS} =0V	---	---	1	uA
		V _{DS} =400V , V _{GS} =0V , TC=125°C	---	---	10	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance ³	V _{DS} =20V , I _D =15A	---	35	---	S
Q _g	Total Gate Charge	I _D =25A	---	85	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =400V	---	20	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V (Note 3, 4)	---	35	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =250V I _D =25A R _G =25Ω (Note 3, 4)	---	85	---	ns
T _r	Rise Time		---	260	---	
T _{d(off)}	Turn-Off Delay Time		---	190	---	
T _f	Fall Time		---	160	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	6800	---	pF
C _{oss}	Output Capacitance		---	600	---	
C _{rss}	Reverse Transfer Capacitance		---	65	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	25	A
I _{SM}	Pulsed Source Current		---	---	75	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =24 A , T _J =25°C	---	---	1.4	V
t _{rr}	Reverse Recovery Time	I _S = 24 A , V _{GS} = 0 V	---	400	---	ns
Q _{rr}	Reverse Recovery Charge	di _F /dt = 100 A/ μs	---	7.2	---	uC

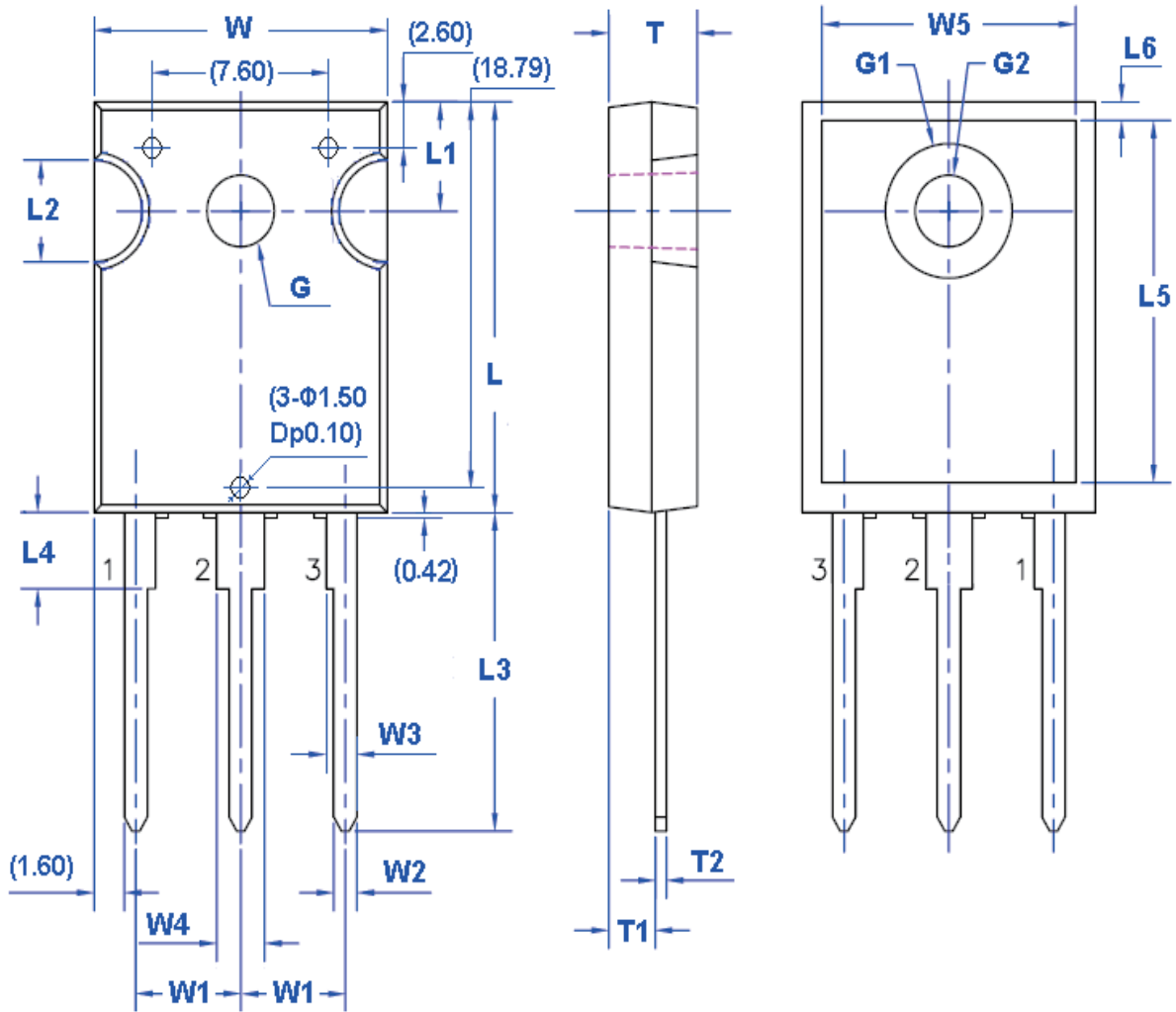
Note :

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature
- 2.L = 1mH, I_D = 40A, V_{DD} = 50V, Starting T_J = 25 °C
- 3.Pulse Test: Pulse width≤300μs, Duty Cycle≤2%
- 4.Essentially Independent of Operating Temperature

This product has been designed and qualified for the consumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserves the right to improve product design ,functions and reliability without notice.

Package Dimensions

TO-247 Package Outline Drawing



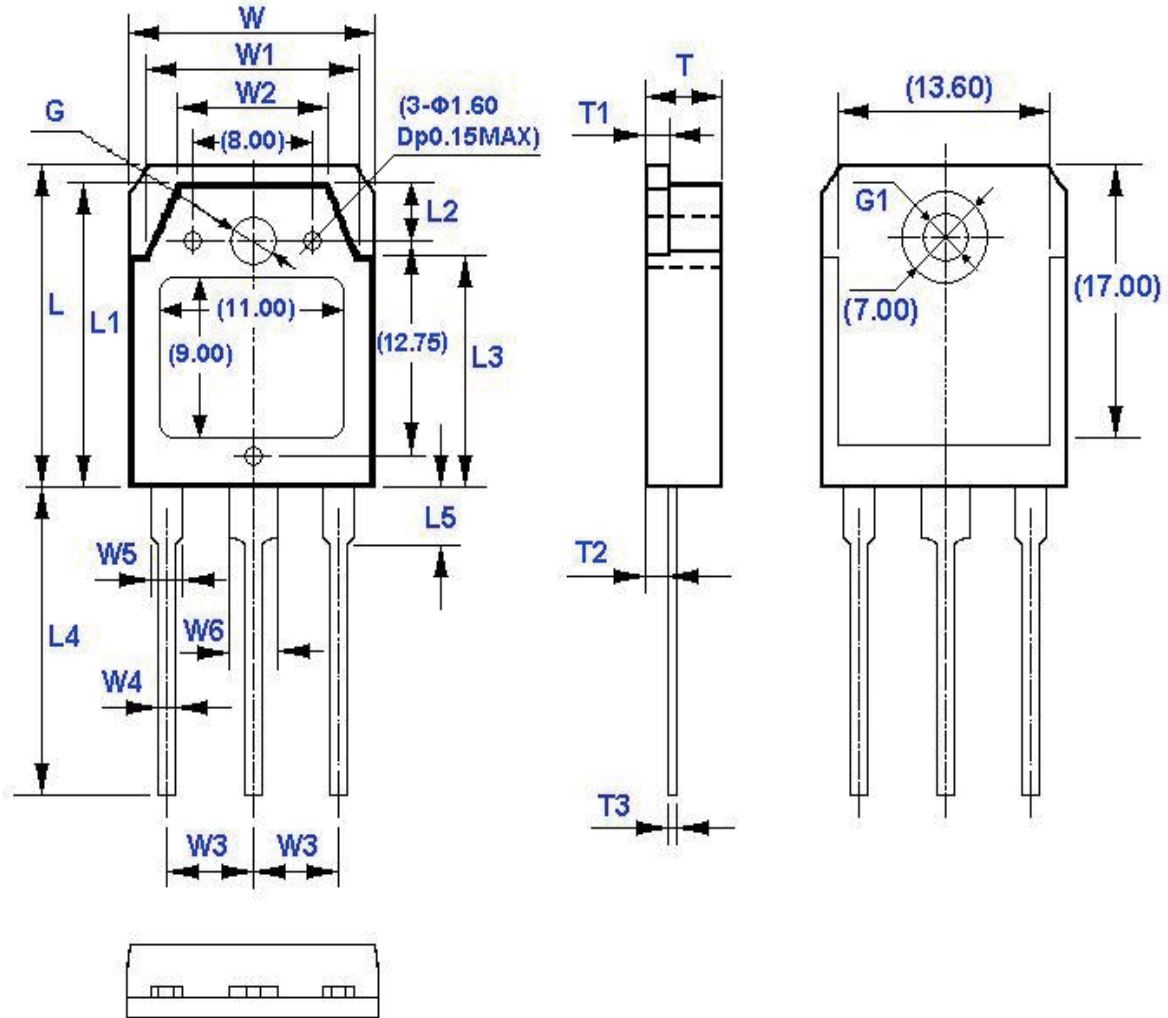
(Unit : mm)

Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	15.37	15.87	W5	12.70	13.00	L4	3.69	3.93	T2	0.51	0.71
W1	5.56 (TYP)		L	20.32	20.82	L5	16.00	17.00	G(Φ)	3.51	3.65
W2	1.17	1.35	L1	5.34	5.58	L6	0.51	1.35	G1(Φ)	6.61	6.85
W3	1.53	1.77	L2	4.96	5.20	T	4.58	4.82	G2(Φ)	3.51	3.65
W4	2.42	2.66	L3	15.75	16.25	T1	2.29	2.66			

Note: The values in () are reference values. Size does not include burrs and mold flash

Package Dimensions

TO-3P Package Outline Drawing



(Unit : mm)

Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	15.40	15.80	W5	1.80	2.20	L3	13.70	14.10	T2	1.20	1.60
W1	13.40	13.80	W6	2.80	3.20	L4	19.70	20.30	T3	0.55	0.75
W2	9.40	9.80	L	19.70	20.10	L5	3.30	3.70	G (Φ) (front)	3.30	3.50
W3	5.45 (TYP)		L1	18.50	18.90	T	4.60	5.00	G1(Φ) (back)	3.10	3.30
W4	0.80	1.20	L2	3.60	4.00	T1	1.45	1.65			

Note: The values in () are reference values. Size does not include burrs and mold flash