

General Description

The 24N50 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

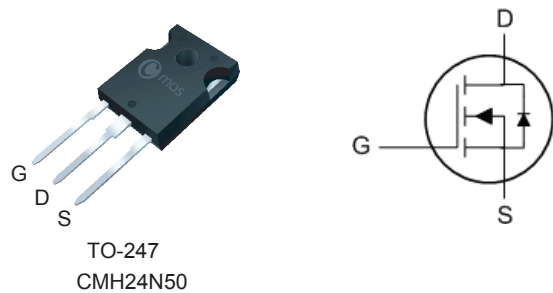
Product Summary

BVDSS	RDSON	ID
500V	0.2Ω	24A

Applications

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

TO247 Pin Configuration



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	24	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	15	A
I_{DM}	Pulsed Drain Current ¹	96	A
EAS	Single Pulse Avalanche Energy ²	810	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	290	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 =12A	---	---	0.2	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} =15V , I _D =13A	---	31	---	S
Q _g	Total Gate Charge	I _D =24A	---	90	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =400V	---	22	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V (Note 3, 4)	---	45	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =250V I _D =24A R _G =25Ω (Note 3, 4)	---	100	---	ns
T _r	Rise Time		---	250	---	
T _{d(off)}	Turn-Off Delay Time		---	200	---	
T _f	Fall Time		---	150	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	6300	---	pF
C _{oss}	Output Capacitance		---	600	---	
C _{rss}	Reverse Transfer Capacitance		---	65	---	

Diode Characteristics

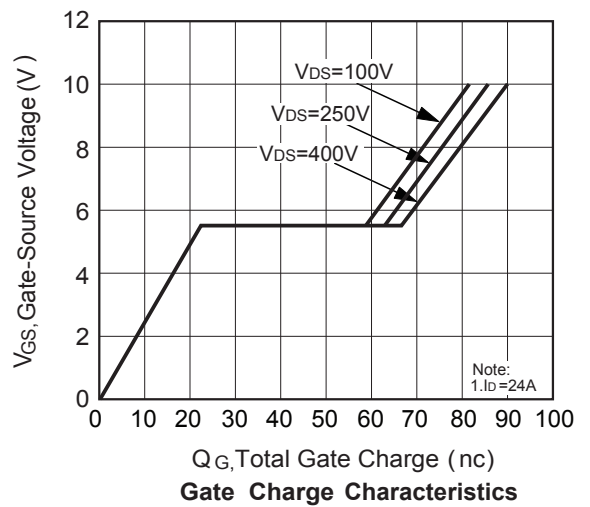
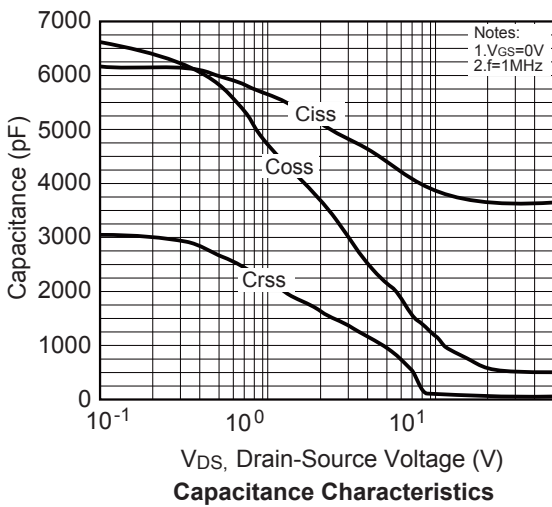
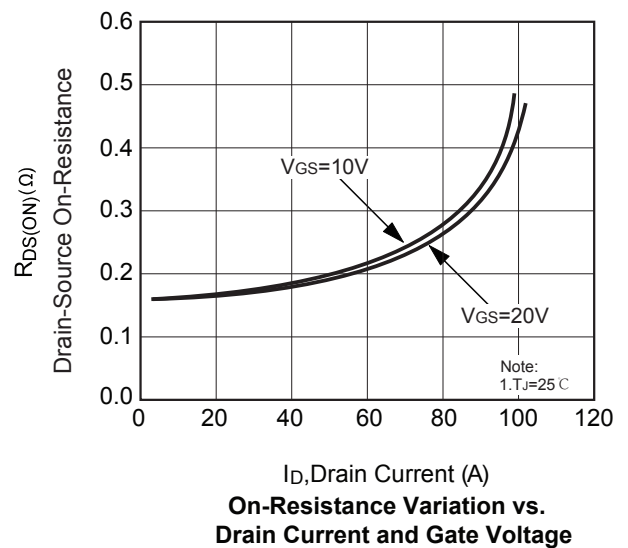
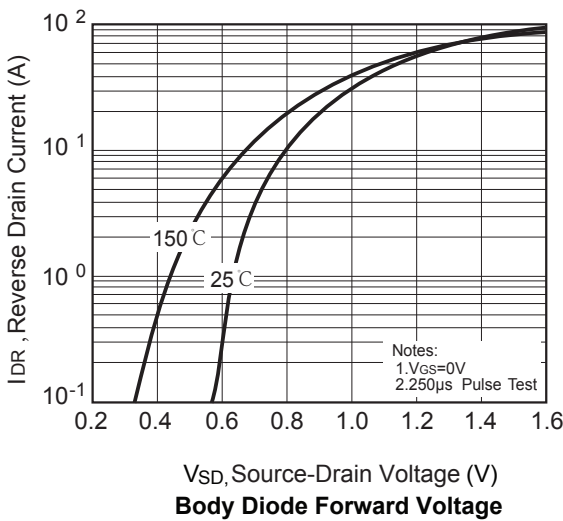
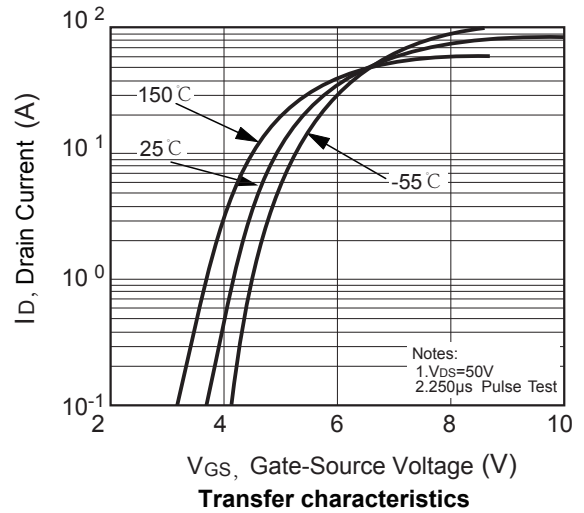
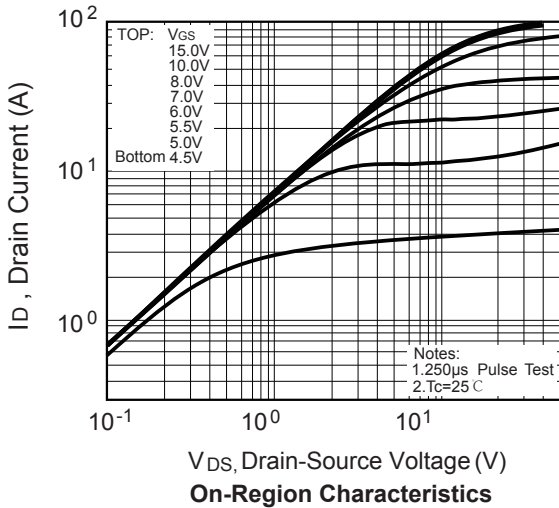
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	24	A
I _{SM}	Pulsed Source Current		---	---	72	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =24 A , T _J =25°C	---	---	1.4	V

Note :

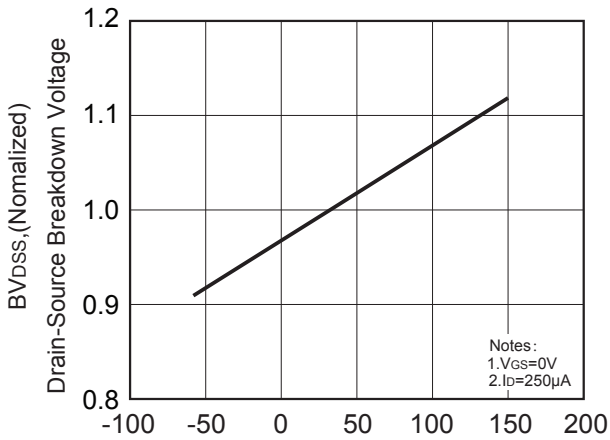
- 1.Repetitive Rating: Pulse width limited by maximum junction temperature
- 2.L = 5mH, I_D = 18A, V_{DD} = 50V, Starting T_J = 25 °C
- 3.Pulse Test: Pulse width≤300μs, Duty Cycle≤2%
- 4.Essentially Independent of Operating Temperature

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Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

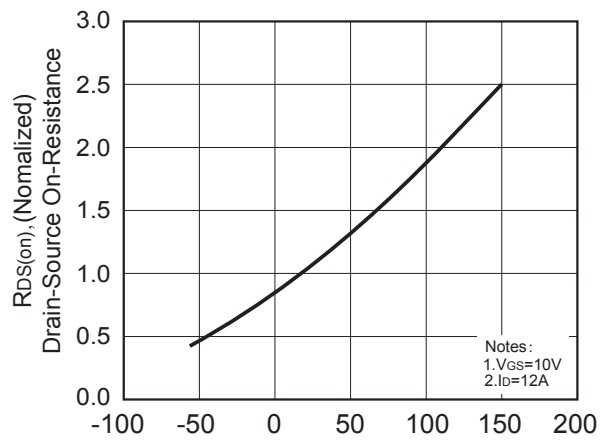
Typical Characteristics



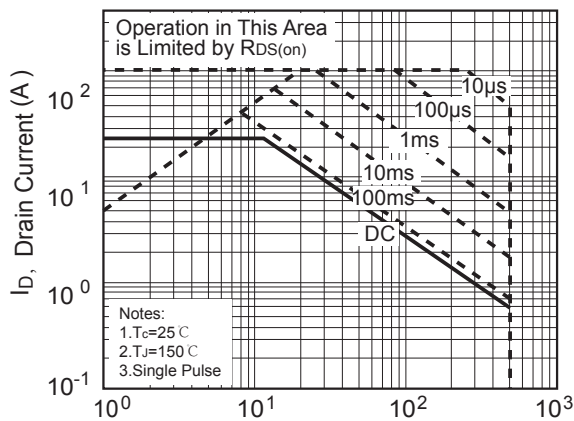
Typical Characteristics



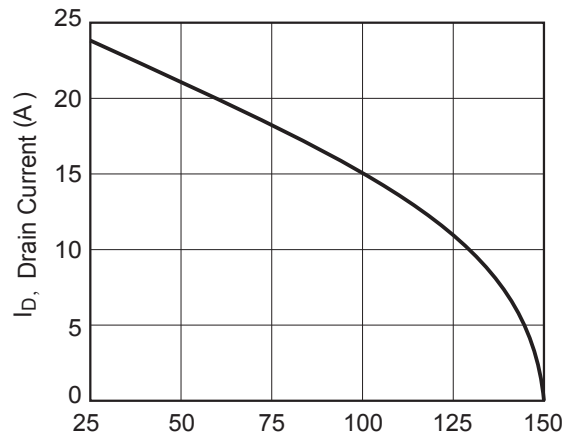
T_j , Junction Temperature (°C)
Breakdown Voltage Variation



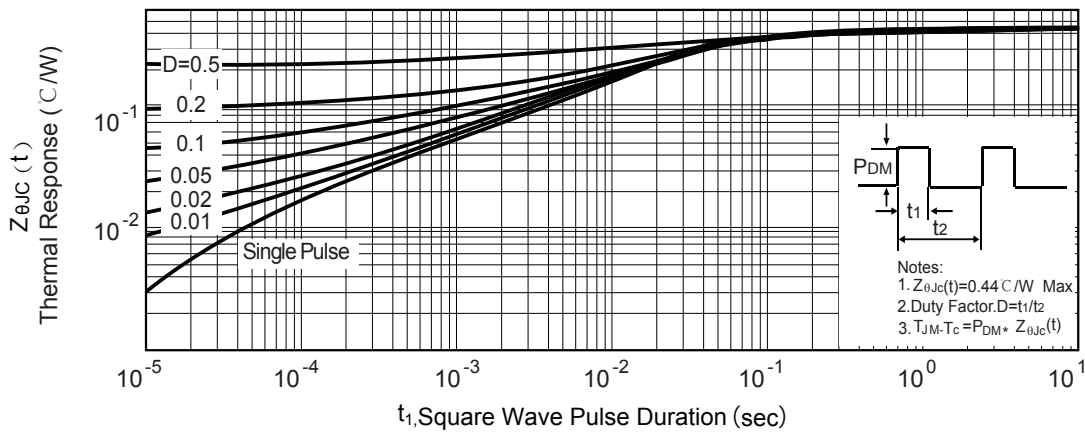
T_j , Junction Temperature (°C)
On-Resistance Variation



V_{DS} , Drain-Source Voltage (V)
Maximum Safe Operating Area



T_C Case Temperature (°C)
Maximum Drain Current vs. Case Temperature



t_1 , Square Wave Pulse Duration (sec)
Transient Thermal Response Curve