CHENMKO ENTERPRISE CO.,LTD

CHM83A3PAPT

SURFACE MOUNT

N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 30 Volts CURRENT 80 Ampere

Lead free devices

APPLICATION

* Servo motor control.
* Power MOSFET gate drivers.
* Other switching applications.

FEATURE

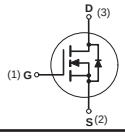
* Small package. (TO-252A)
* Super high dense cell design for extremely low $R_{DS(ON)}$.
* High power and current handing capability.

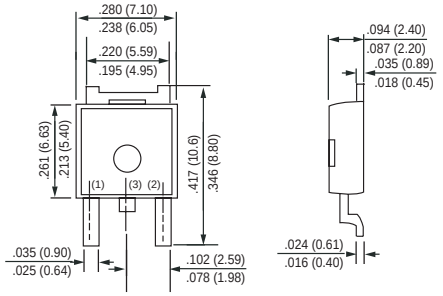
CONSTRUCTION

* N-Channel Enhancement

TO-252A

CIRCUIT





1 Gate
2 Source
3 Drain(Heat Sink)

Dimensions in inches and (millimeters)

TO-252A

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM83A3PAPT	Units
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Maximum Drain Current - Continuous	80	A
	- Pulsed (Note 3)	350	
P_D	Maximum Power Dissipation at Tc = 25°C	70	W
T_J	Operating Temperature Range	-55 to 150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C

Note : 1. Surface Mounted on FR4 Board , t <=10sec
2. Pulse Test , Pulse width <= 300us , Duty Cycle <= 2%
3. Repetitive Rating , Pulse width linited by maximum junction temperature
4. Guaranteed by design , not subject to production trsting

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	50	°C/W

2006-02

RATING CHARACTERISTIC CURVES (CHM83A3PAPT)

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 250 µA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 30 V, V_{GS} = 0 V			1	µA
I_{GSSF}	Gate-Body Leakage	V_{GS} = 20V, V_{DS} = 0 V			+100	nA
I_{GSSR}	Gate-Body Leakage	V_{GS} = -20V, V_{DS} = 0 V			-100	nA
ON CHARACTERISTICS (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 µA	1		3	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=30A		5	6	mΩ
		V_{GS}=4.5V, I_D=30A		7.5	9	
g_{FS}	Forward Transconductance	V_{DS} =10V, I_D = 15A		50		S
SWITCHING CHARACTERISTICS (Note 4)						
Q_g	Total Gate Charge	V_{DS}=15V, I_D=16A V_{GS}=5V		50	65	nC
Q_{gs}	Gate-Source Charge			20.8		
Q_{gd}	Gate-Drain Charge			19		
t_{on}	Turn-On Time	V_{DD}= 15V I_D = 1.0A, V_{GS} = 10 V R_{GEN} = 6 Ω		25.7	50	nS
t_r	Rise Time			10	20	
t_{off}	Turn-Off Time			128	200	
t_f	Fall Time			34	70	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I_S	Drain-Source Diode Forward Current	(Note 1)			20	A
V_{SD}	Drain-Source Diode Forward Voltage	I_S = 20A, V_{GS} = 0 V (Note 2)			1.5	V

RATING CHARACTERISTIC CURVES (CHM83A3PAPT)

Typical Electrical Characteristics

Figure 1. Output Characteristics

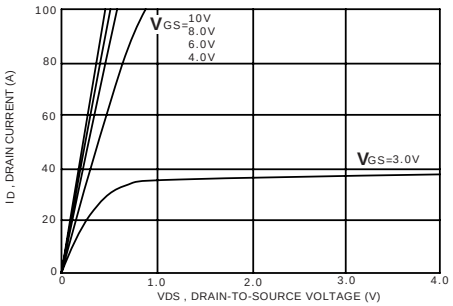


Figure 2. Transfer Characteristics

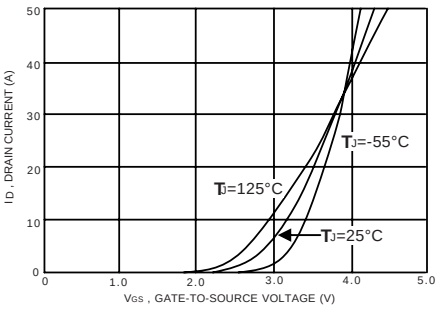


Figure 3. Gate Charge

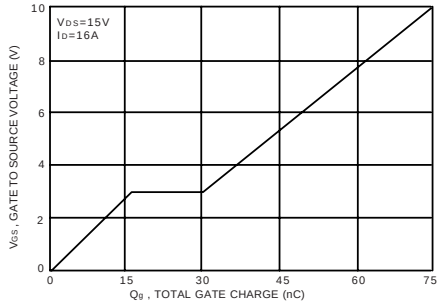


Figure 4. On-Resistance Variation with Temperature

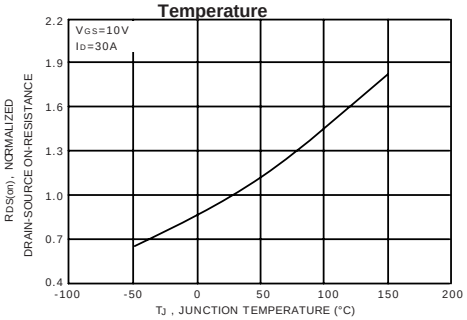


Figure 5. Gate Threshold Variation with Temperature