

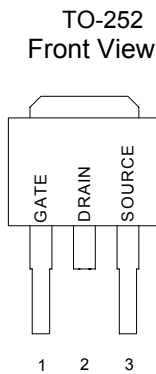
APPLICATION

- ◆ $V_{DS}=25V$
- ◆ $R_{DS(ON)}=8.5\text{ m}\Omega$ (Max.) , V_{GS} @10V, $I_{DS}@30A$
- ◆ $R_{DS(ON)}=13\text{ m}\Omega$ (Max.), V_{GS} @4.5V, $I_{DS}@30A$

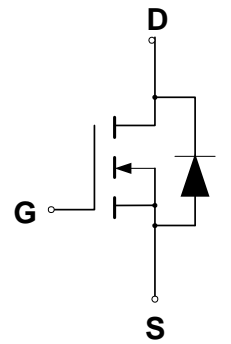
FEATURES

- ◆ Advanced trench process technology
- ◆ High Density Cell Design For Ultra Low On-Resistance
- ◆ Fully Characterized Avalanche Voltage and Current

PIN CONFIGURATION



SYMBOL



N-Channel MOSFET

Maximum Ratings and Thermal Characteristics

($T_A=25^\circ\text{C}$ unless otherwise notes)

Rating	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	25	V
Gate -Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	30	A
Pulsed Drain Current ¹⁾	I_{DM}	260	A
Maximum Power Dissipation	$T_A=25^\circ\text{C}$	P_D	60 W
	$T_A=75^\circ\text{C}$	P_D	23 W
Operating Junction and Storage Temperature Range	T_J / T_{STG}	-55 to 150	$^\circ\text{C}$
Junction – to –Case Thermal Resistance	$R_{\theta JC}$	1.8	$^\circ\text{C}/\text{W}$
Junction – to Ambient Thermal Resistance (PCB mount) ²⁾	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$

Note : 1. Repetitive Rating : Pulse width limited by the Maximum junction temperature

2. 1-in² 2oz Cu PCB board

3. Guaranteed by design ; not subject to production testing

ORDERING INFORMATION

Part Number	Package
CMT35N03GN252	TO-252

ELECTRICAL CHARACTERISTICS

(TA=25°C unless otherwise notes)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Static						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	25	-	-	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=30A$	-	9.5	13.0	$m\Omega$
		$V_{GS}=10V, I_D=30A$	-	6.5	9.0	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	1	1.8	3	V
g_{fs}	Forward Transconductance	$V_{DS}=15V, I_D=15A$	-	12	-	S
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=25V, V_{GS}=0V$	-	-	1	μA
I_{GSS}	Gate-Source Forward Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Dynamic³⁾						
Q_g	Total Gate Charge	$I_D=35A$	-	10	25	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=15V$	-	3.5	10	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=10V$	-	3	65	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=15V$	-	12	-	ns
t_r	Rise Time	$I_D=1A$	-	4	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=6\Omega$	-	32	-	ns
t_f	Fall Time	$R_L=15\Omega$	-	6	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	1180	-	pF
C_{oss}	Output Capacitance	$V_{DS}=15V$	-	270	-	pF
C_{riss}	Reverse Transfer Capacitance	$f=1.0MHz$	-	145	-	pF

Source-Drain Diode

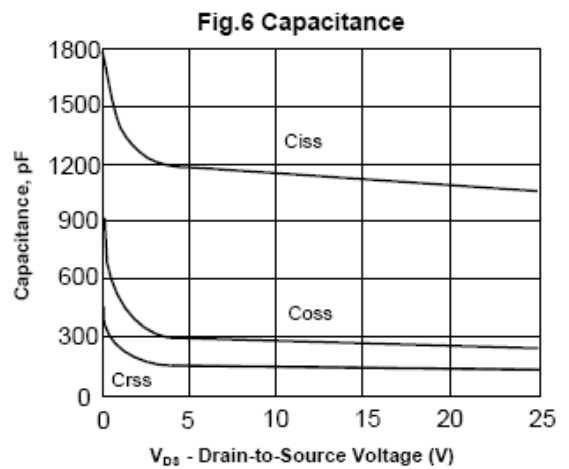
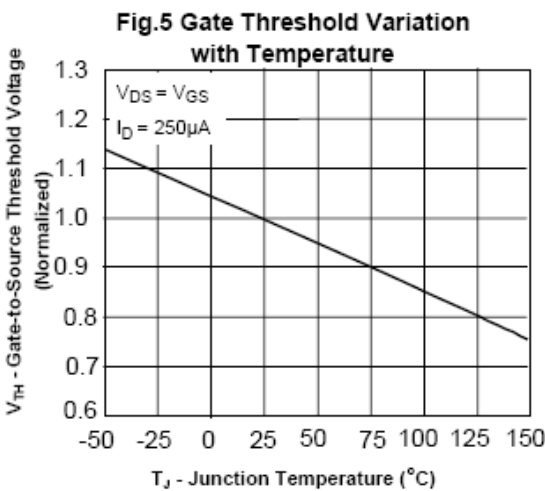
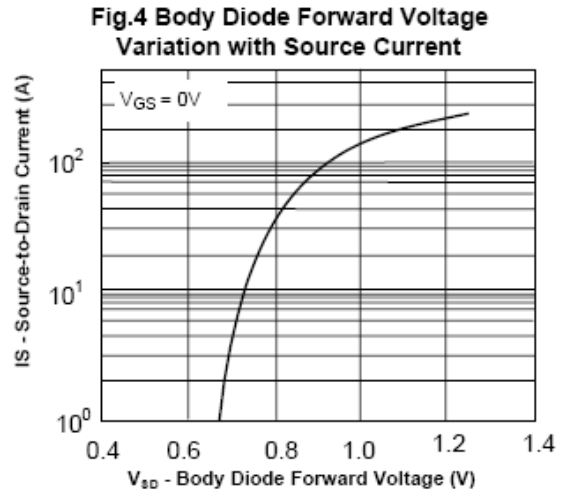
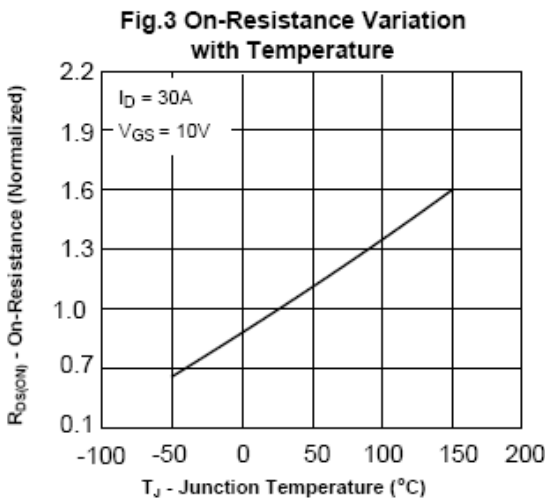
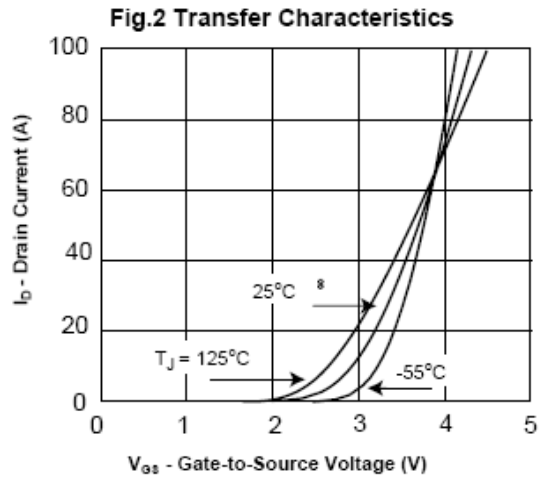
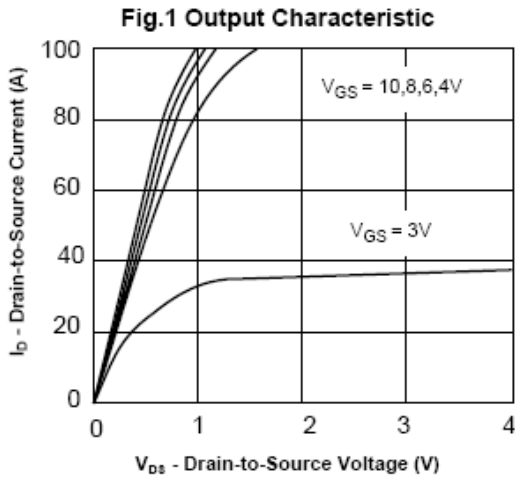
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Diode Forward Voltage	$I_S=20A, V_{GS}=0V$	-	0.87	1.5	V
I_S	Max. Diode Forward Current		-	-	20	A

Notes:

Pulse test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS

Typical Characteristics Curves ($T_a=25^\circ\text{C}$, unless otherwise noted)



Typical Characteristics Curves (Ta=25°C, unless otherwise noted)

Fig. 7 Gate Charge Waveform

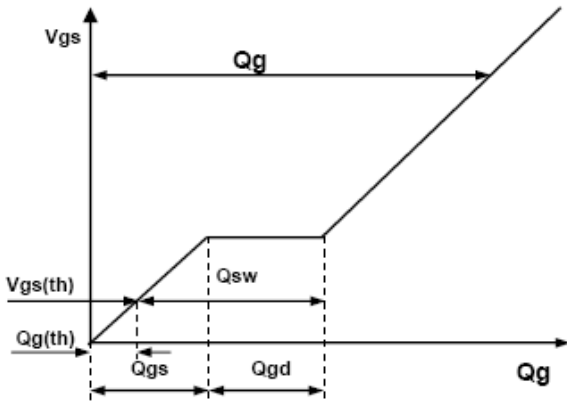


Fig. 8 Gate Charge

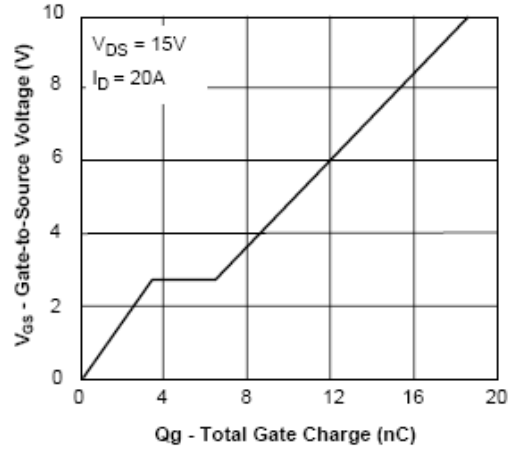


Fig. 9 Maximum Safe Operating Area

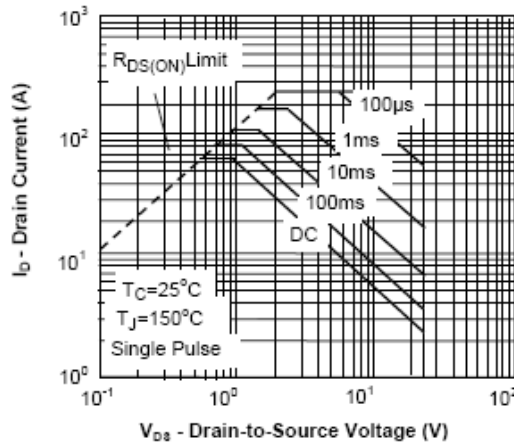
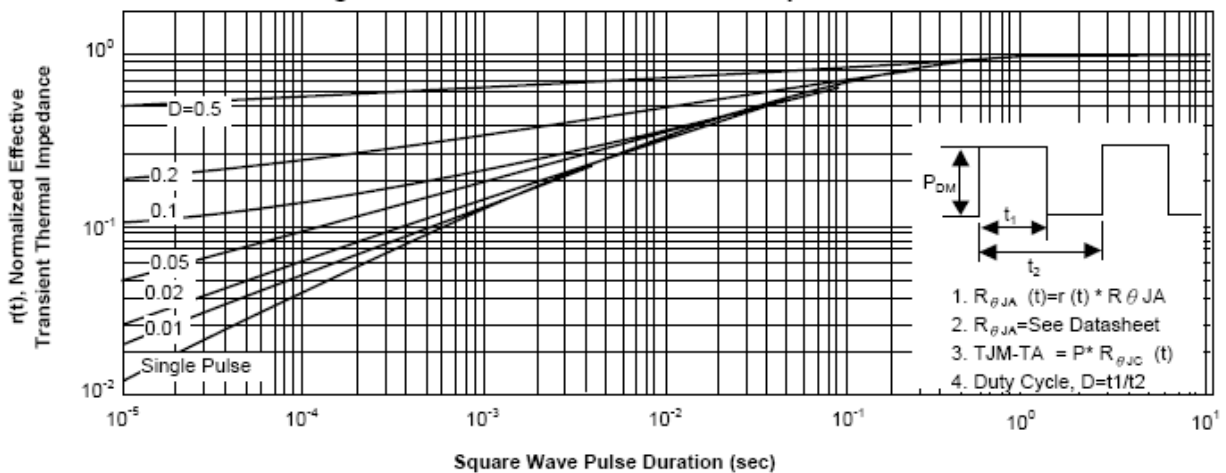
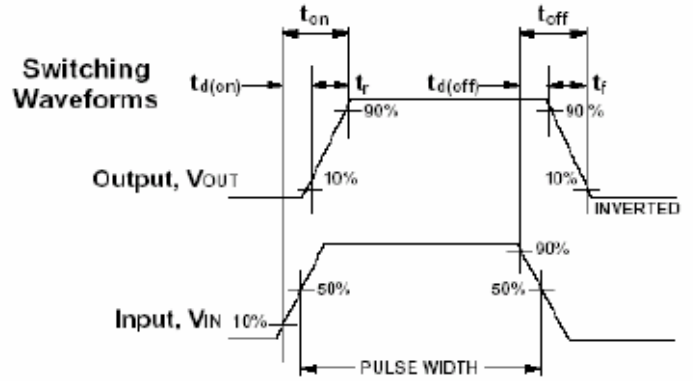
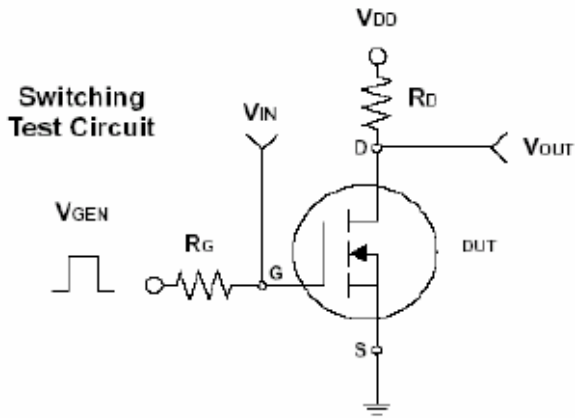


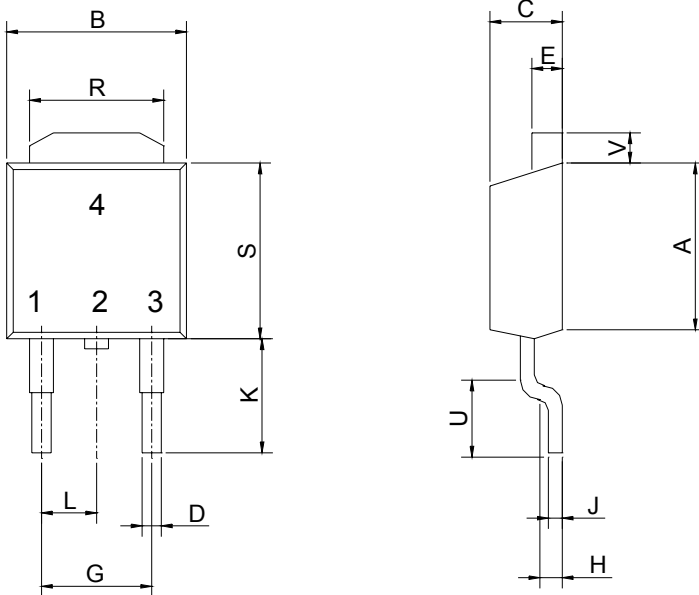
Fig. 10 Normalized Thermal Transient Impedance Curve





PACKAGE DIMENSION

TO-252



PIN 1: GATE
PIN 2: DRAIN
PIN 3: SOURCE

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	5.97	---	6.35	0.235	---	0.250
B	6.35	---	6.73	0.250	---	0.265
C	2.19	---	2.38	0.086	---	0.094
D	0.69	---	0.88	0.027	---	0.035
E	0.84	---	1.01	0.033	---	0.047
G	4.58BSC			0.180BSC		
H	0.87	---	1.01	0.034	---	0.040
J	0.46	---	0.58	0.018	---	0.023
K	2.60	---	2.89	0.102	---	0.114
L	2.29BSC			0.090BSC		
R	4.45	---	5.46	0.175	---	0.215
S	0.51	---	1.27	0.020	---	0.050
U	0.51	---	---	0.020	---	---
V	0.77	---	1.27	0.030	---	0.050

IMPORTANT NOTICE

Champion Microelectronic Corporation (CMC) reserves the right to make changes to its products or to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

A few applications using integrated circuit products may involve potential risks of death, personal injury, or severe property or environmental damage. CMC integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life-support applications, devices or systems or other critical applications. Use of CMC products in such applications is understood to be fully at the risk of the customer. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

HsinChu Headquarter

5F-1, No. 11, Park Avenue II,
Science-Based Industrial Park,
HsinChu City, Taiwan
TEL: +886-3-567 9979
FAX: +886-3-567 9909

Sales & Marketing

7F-6, No.32, Sec. 1, Chenggong Rd., Nangang
District, Taipei City 115, Taiwan
TEL: +886-2-2788 0558
FAX: +886-2-2788 2985
