

### Description

CM1672 is the N-Channel enhancement mode power field effect transistors with high cell density, trench technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

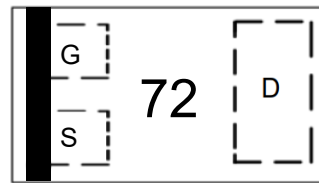
### Features

- $V_{DS}$ : 60V
- $I_D$ : 0.35A
- $R_{DS(on)}$  (@ $V_{GS}=10V$ ) : < 2.8 $\Omega$
- $R_{DS(on)}$  (@ $V_{GS}=5V$ ) : < 3.2 $\Omega$
- High density cell design for extremely low  $R_{DS(on)}$
- Excellent on-resistance and DC current capability

### Applications

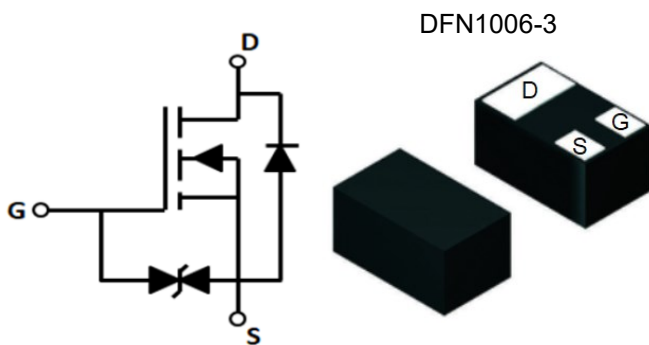
- Direct logic-level interface: TTL/CMOS
- Drivers: relays, solenoids, lamps, hammers, display, memories, transistors, etc.
- Switching circuits
- Solid-state relays

### Marking Information



Device Code = 72

### Equivalent Circuit and Pin Configuration



### Ordering Information

Part Number	Packaging	Reel Size
CM1672	10000/Tape & Reel	7 inch

### Absolute Maximum Ratings (TA=25 °C unless otherwise noted)

Parameter	Symbol	Maximum	Unit	
Drain-source Voltage	$V_{DS}$	60	V	
Gate-source Voltage	$V_{GS}$	$\pm 20$	V	
Continuous Drain Current	$I_D$	$T_A=25^\circ C$	0.35	A
		$T_A=100^\circ C$	0.20	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	0.8	A	
Total Power Dissipation <sup>(2)</sup>	$P_D$	0.35	mW	
Thermal Resistance Junction-to-Ambient <sup>(2)</sup>	$R_{\theta JA}$	360	$^\circ C/W$	
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$	

**Electrical Characteristics (T<sub>J</sub>=25 °C unless otherwise noted)**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V, T <sub>C</sub> =25°C			1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±10	μA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	1.7	1.9	V
Static Drain-Source on-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.2A		2.2	2.8	Ω
		V <sub>GS</sub> =5V, I <sub>D</sub> =0.2A		2.5	3.2	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =0.2A, V <sub>GS</sub> =0V			1.3	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				0.2	A
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz		21		pF
Output Capacitance	C <sub>oss</sub>			5		
Reverse Transfer Capacitance	C <sub>rss</sub>			4.2		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =0.2A		1.70		pF
Gate Source Charge	Q <sub>gs</sub>			0.35		
Gate Drain Charge	Q <sub>gd</sub>			0.55		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, I <sub>D</sub> =0.2A, R <sub>GEN</sub> =10Ω		2.7		ns
Turn-on Rise Time	t <sub>r</sub>			19		
Turn-off Delay Time	t <sub>D(off)</sub>			15		
Turn-off Fall Time	t <sub>f</sub>			23		

Noted: (1) Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

(2) Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for drain 6cm<sup>2</sup>.

**Typical Performance Characteristics**

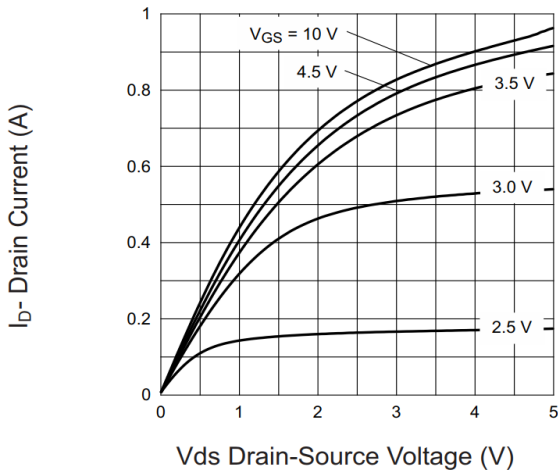


Figure 1. Output Characteristics

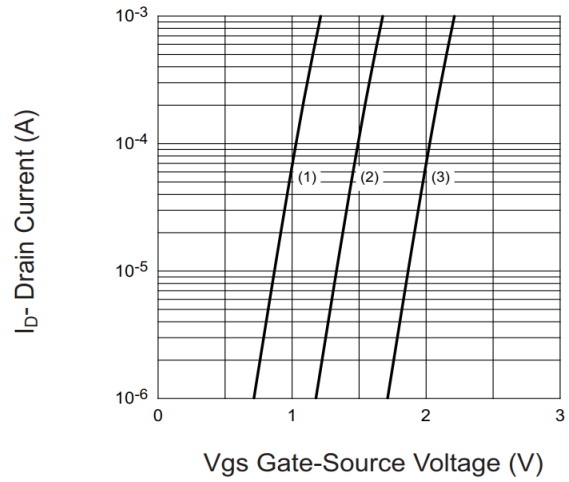


Figure 2. Transfer Characteristics

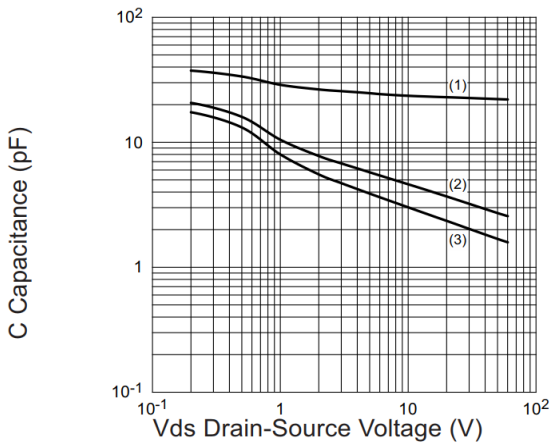


Figure 3. Capacitance Characteristics

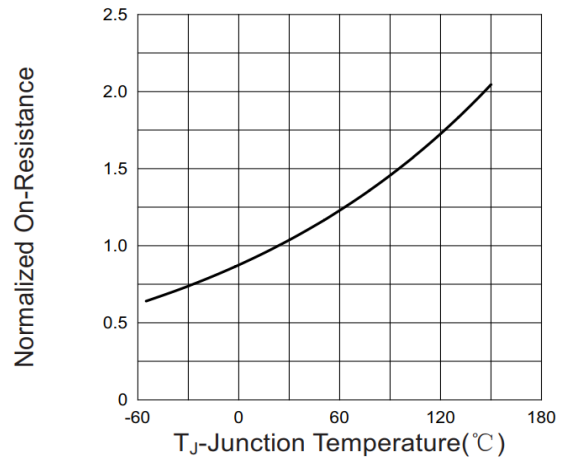


Figure 4. Normalized On-Resistance Vs. Temperature

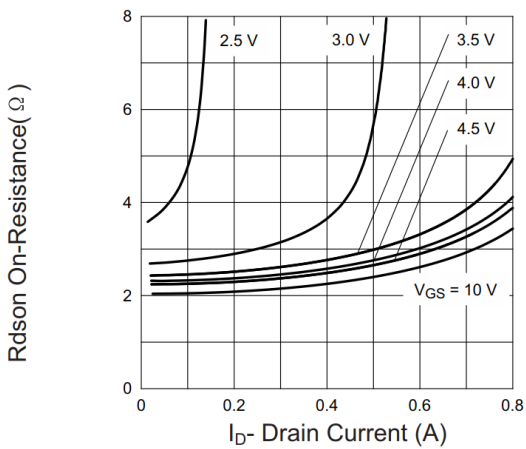


Figure 5. Drain-Source on Resistance

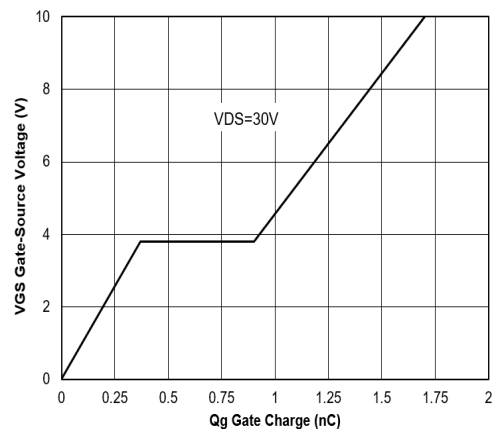


Figure 6. Gate Charge

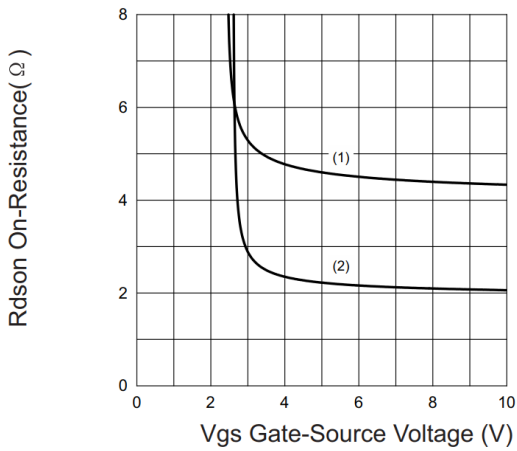


Figure 7. Typical Drain to Source ON Resistance VS Gate Voltage and Drain Current

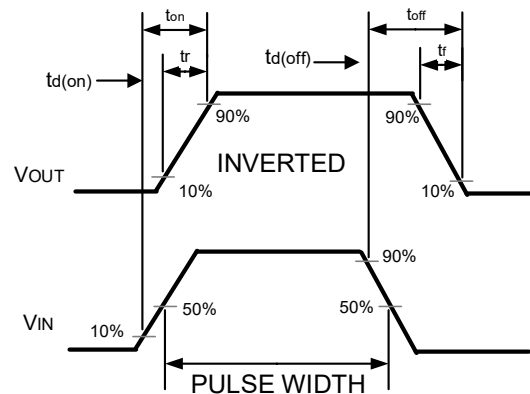


Figure 8. Switching wave

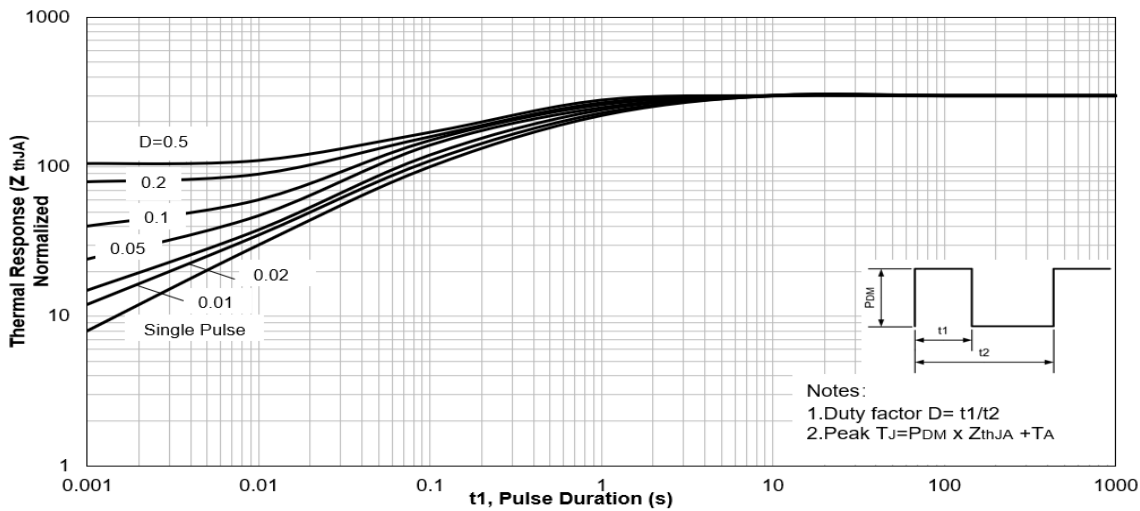


Figure 9. Maximum Effective Transient Thermal Impedance ,Junction-to-Ambient

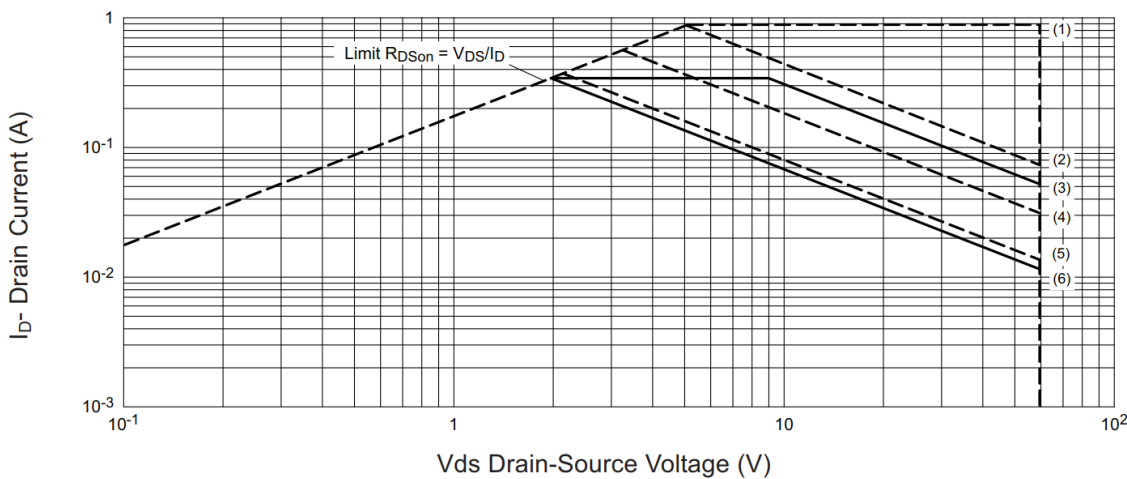
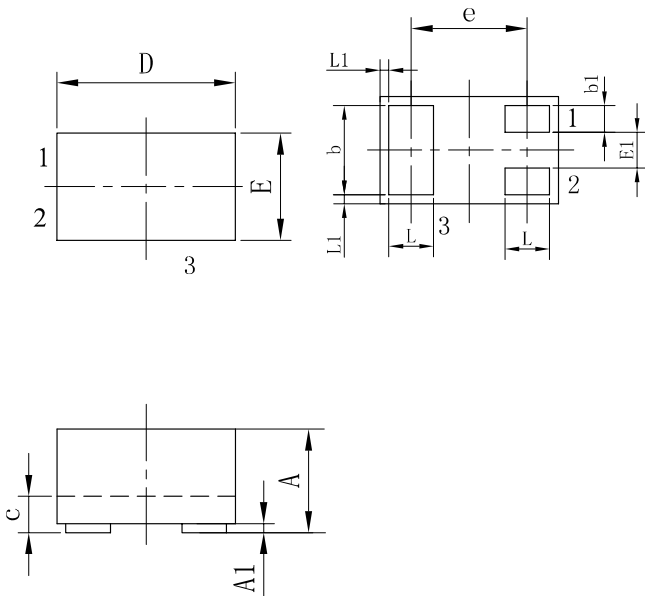


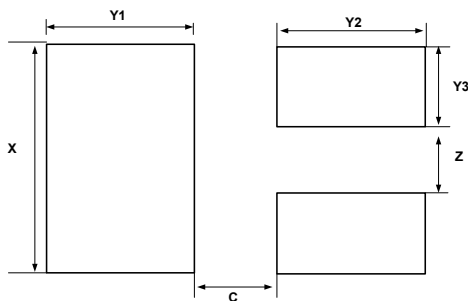
Figure 10. Safe Operation Area

### DFN1006-3 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
b1	0.10	0.15	0.20	0.004	0.006	0.008
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
E1	0.15	0.20	0.25	0.006	0.008	0.010
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05 REF			0.0002 REF		

### Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	0.25	0.010
X	0.65	0.024
Y1	0.50	0.020
Y2	0.50	0.020
Y3	0.25	0.010
Z	0.20	0.008

### Contact Information

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