

• General Description

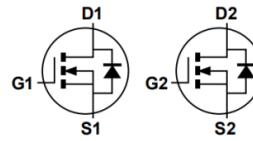
It combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• Features

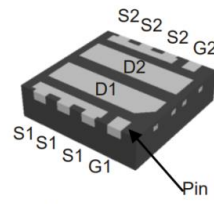
- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Dual DIE in one package

• Application

- Power Management in Notebook Computer,
- Portable Equipment and Battery Powered Systems

• Product Summary


$V_{DS1} = 60V$
 $V_{DS2} = 60V$
 $R_{DS(ON)1} = 28m\Omega$
 $R_{DS(ON)2} = 28m\Omega$
 $I_{D1} = 20A$
 $I_{D2} = 20A$



DFN3 x 3

• Ordering Information:

Part NO.	ZMD68602M
Marking	68602
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

• Absolute Maximum Ratings (T_C =25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_{D@TC=25^{\circ}C}$	20	A
	$I_{D@TC=75^{\circ}C}$	15	A
	$I_{D@TC=100^{\circ}C}$	12	A
Pulsed Drain Current ^①	I_{DM}	40	A
Total Power Dissipation(TC=25°C)	$P_D@TC=25^{\circ}C$	20	W
Total Power Dissipation(TA=25°C)	$P_D@TA=25^{\circ}C$	1.7	W
Operating Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Single Pulse Avalanche Energy	E_{AS}	90	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	6	$^{\circ}C/W$
Thermal resistance, junction - ambient	R_{thJA}	-	-	70	$^{\circ}C/W$
Soldering temperature, wavesoldering for 10s	T_{sold}	-	-	265	$^{\circ}C$

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	1.2	1.8	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 12A$		28	34	m Ω
		$V_{GS} = 4.5V, I_D = 6A$		31	40	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = 25V, I_D = 10A$		5		s
Source-drain voltage	V_{SD}	$I_S = 12A$			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	f = 1MHz	-	1430	-	pF
Output capacitance	C_{oss}		-	160	-	
Reverse transfer capacitance	C_{rss}		-	115	-	

•Gate Charge characteristics($T_a = 25^{\circ}C$)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Total gate charge	Q_g	$V_{DD} = 25V$	-	25	-	nC
Gate - Source charge	Q_{gs}	$I_D = 5A$	-	4	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = 10V$	-	9	-	

Note: ① Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$;

Fig.1 Maximum Continuous Drain Current

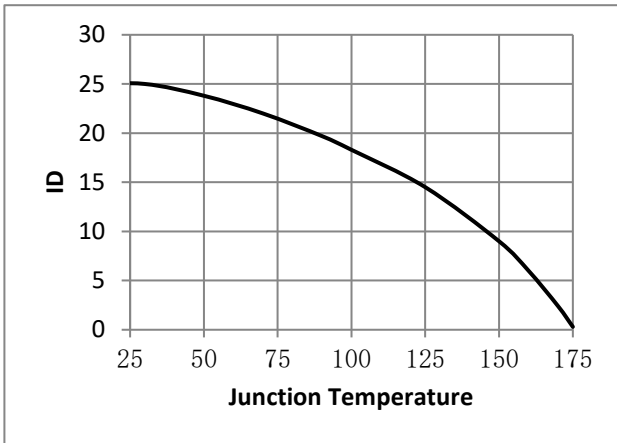


Fig.2 Typical output Characteristics

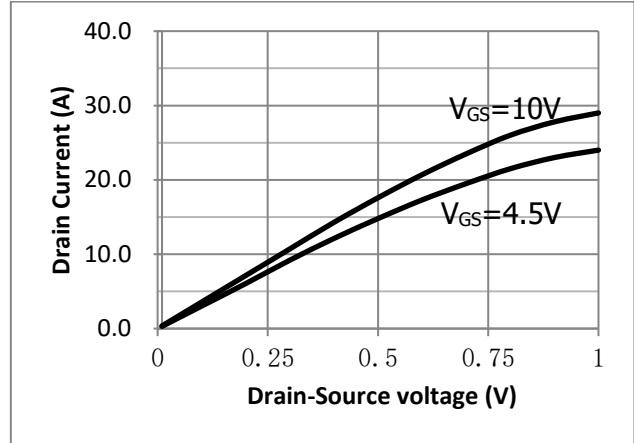


Fig.3 Threshold Voltage V.S Junction Temperature

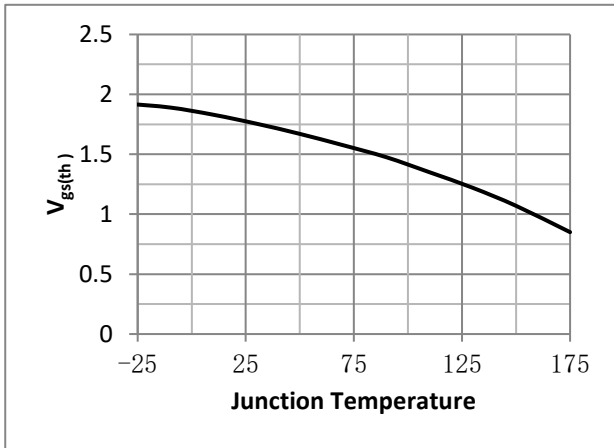


Fig.4 Resistance V.S Drain Current

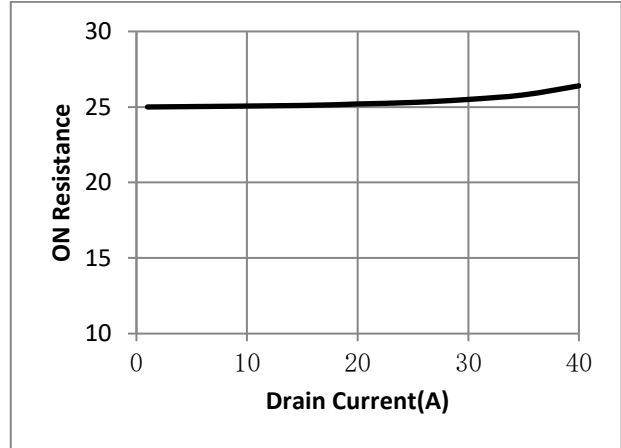


Fig.5 On-Resistance VS Gate Source Voltage

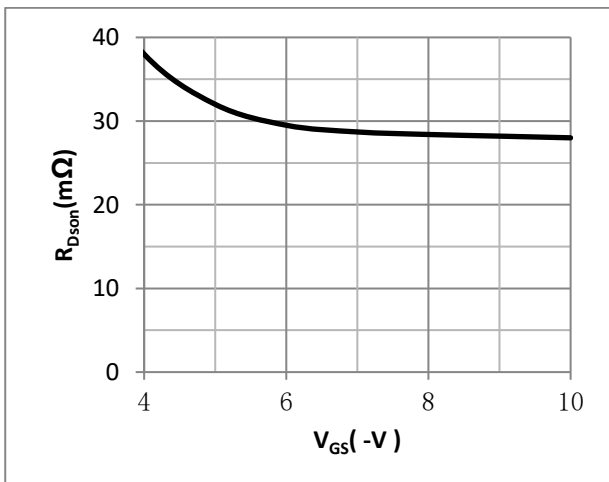


Fig.6 On-Resistance V.S Junction Temperature

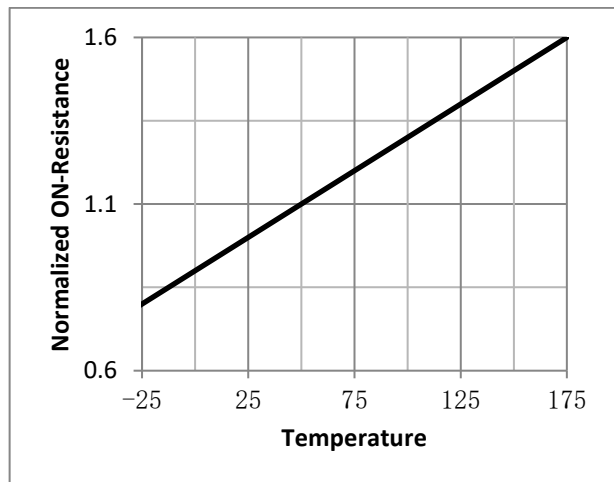


Fig.7 Switching Time Measurement Circuit

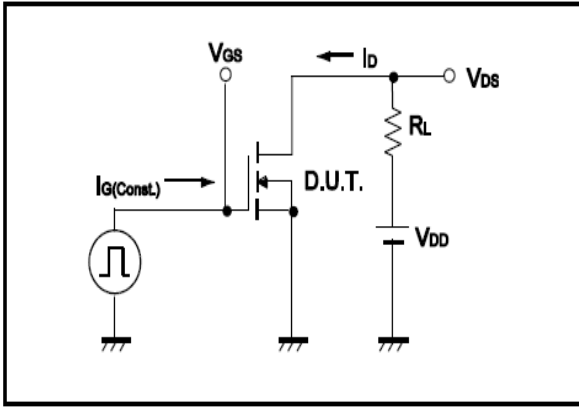


Fig.8 Gate Charge Waveform

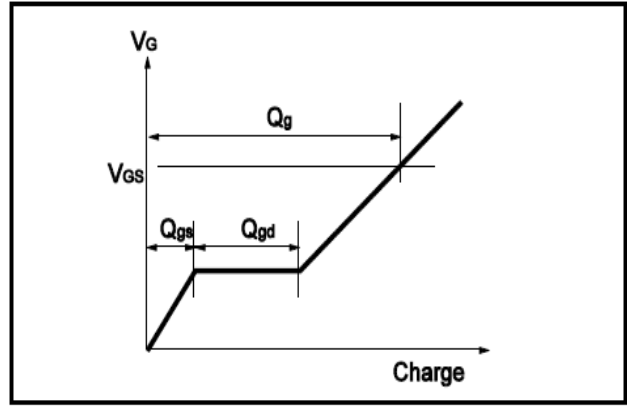


Fig.9 Switching Time Measurement Circuit

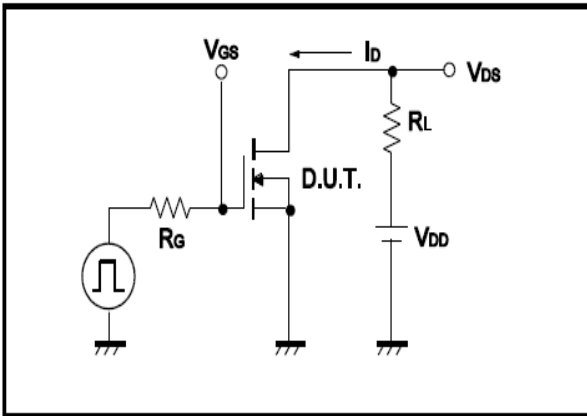


Fig.10 Gate Charge Waveform

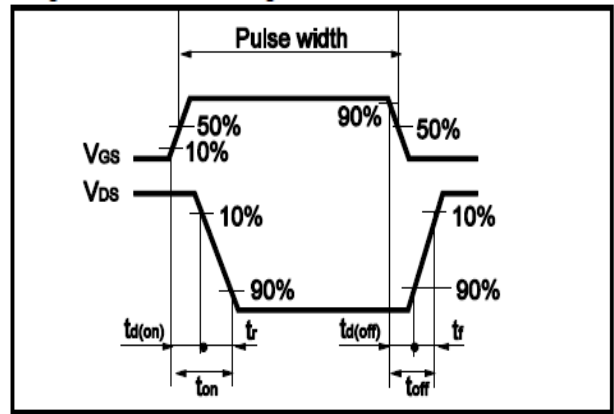


Fig.11 Avalanche Measurement Circuit

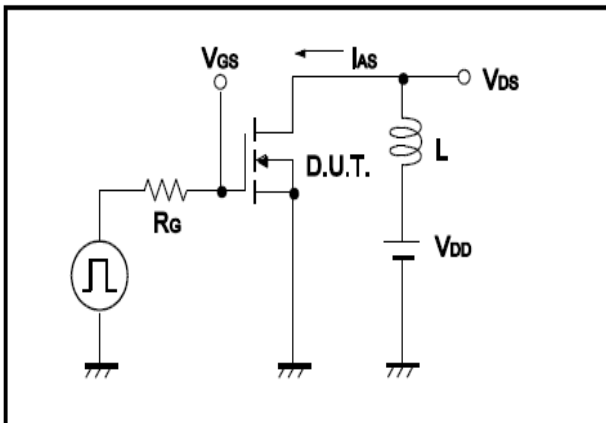


Fig.12 Avalanche Waveform

