

• General Description

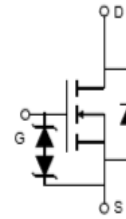
The ZMD68204U combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• 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

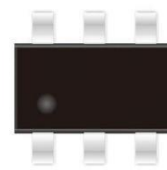
• Application

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

• Product Summary


$V_{DS1} = 20V$
 $V_{DS2} = 20V$
 $R_{DS(ON)1} = 19m\Omega$
 $R_{DS(ON)2} = 19m\Omega$
 $I_{D1} = 5A$
 $I_{D2} = 5A$

G1 D1/D2 G2



S1 D1/D2 S2



SOT23-6

• Ordering Information:

Part NO.	ZMD68204U
Marking	68204
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

• Absolute Maximum Ratings (T_C = 25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	$I_{D@TC=25^{\circ}C}$	5	A
	$I_{D@TC=75^{\circ}C}$	3.8	A
	$I_{D@TC=100^{\circ}C}$	3.2	A
Pulsed Drain Current ^①	I_{DM}	11	A
Total Power Dissipation(TC=25°C)	$P_D@TC=25^{\circ}C$	3.6	W
Total Power Dissipation(TA=25°C)	$P_D@TA=25^{\circ}C$	0.69	W
Operating Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Single Pulse Avalanche Energy	E_{AS}	20	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R _{thJC}	-	-	2.5	° C/W
Thermal resistance, junction - ambient	R _{thJA}	-	-	70	° C/W
Soldering temperature, wavesoldering for 10s	T _{sold}	-	-	265	° C

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	20			V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250uA	0.5		1.2	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1.0	uA
Gate- Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Static Drain-source On Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =4A		19	23	mΩ
		V _{GS} =2.5V, I _D =3A		26	30	mΩ
Forward Transconductance	g _{FS}	V _{DS} =20V, I _D =2A		7		s
Source-drain voltage	V _{SD}	I _S =4A			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C _{iss}	f = 1MHz	-	450	-	pF
Output capacitance	C _{oss}		-	130	-	
Reverse transfer capacitance	C _{rss}		-	75	-	

•Gate Charge characteristics(T_a = 25°C)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q _g	V _{DD} = 15V	-	10	-	nC
Gate - Source charge	Q _{gs}	I _D = 3A	-	4	-	
Gate - Drain charge	Q _{gd}	V _{GS} = 4.5V	-	3	-	

Note: ① Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

Fig.1 Power Dissipation

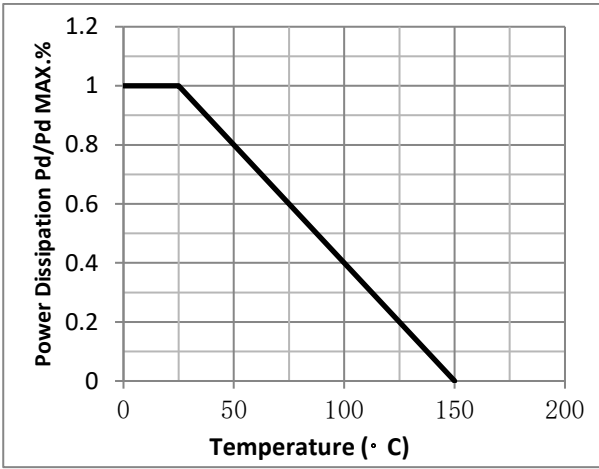


Fig.2 Typical output Characteristics

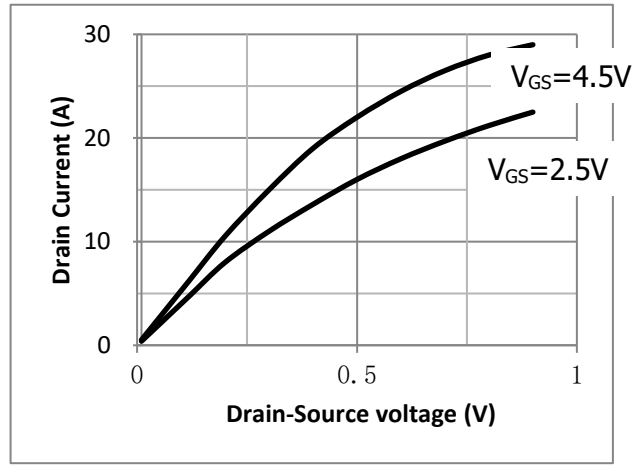


Fig.3 Threshold Voltage V.S Junction Temperature

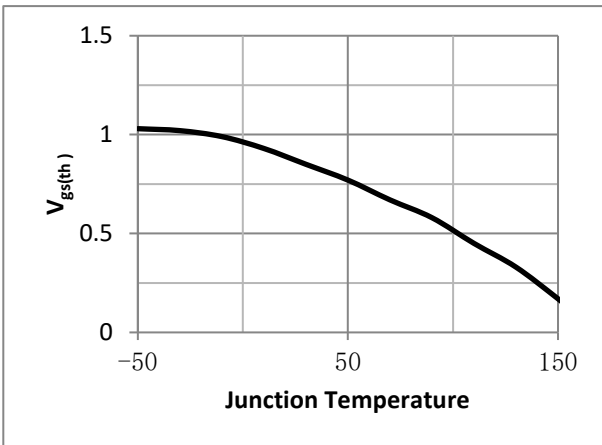


Fig.4 Resistance V.S Drain Current

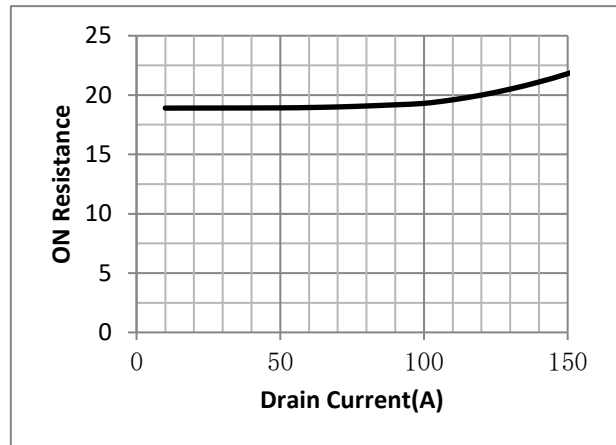


Fig.5 On-Resistance VS Gate Source Voltage

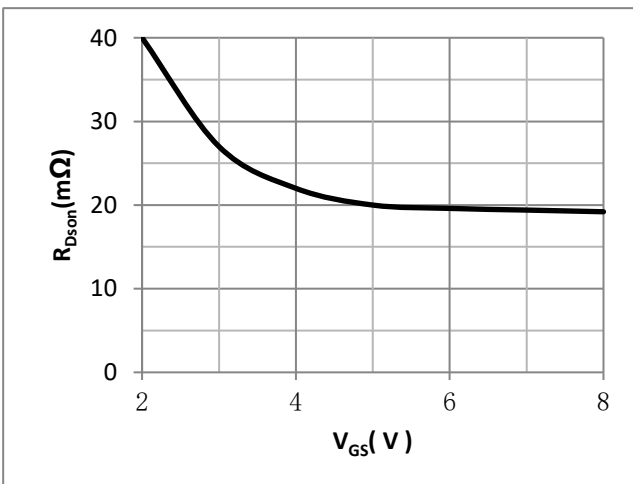


Fig.6 On-Resistance V.S Junction Temperature

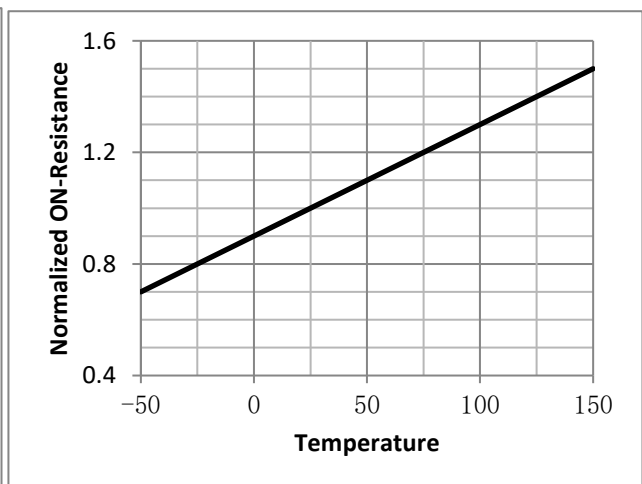


Fig.7 Switching Time Measurement Circuit

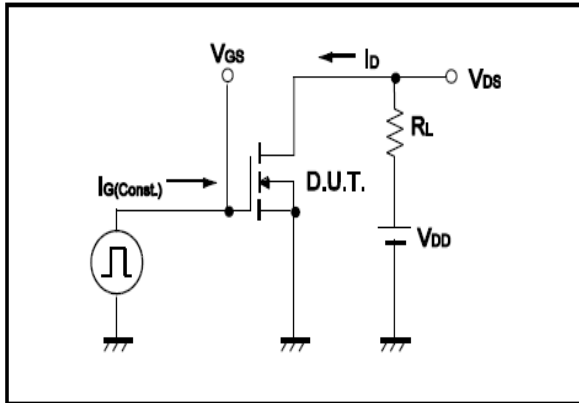


Fig.8 Gate Charge Waveform

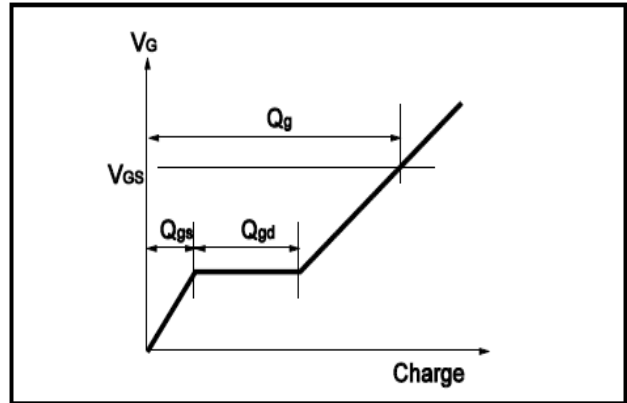


Fig.9 Switching Time Measurement Circuit

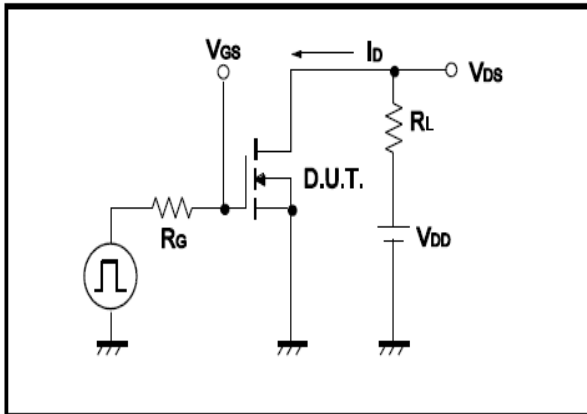


Fig.10 Gate Charge Waveform

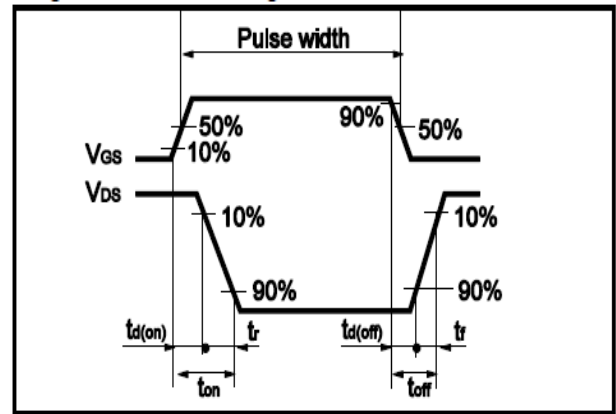


Fig.11 Avalanche Measurement Circuit

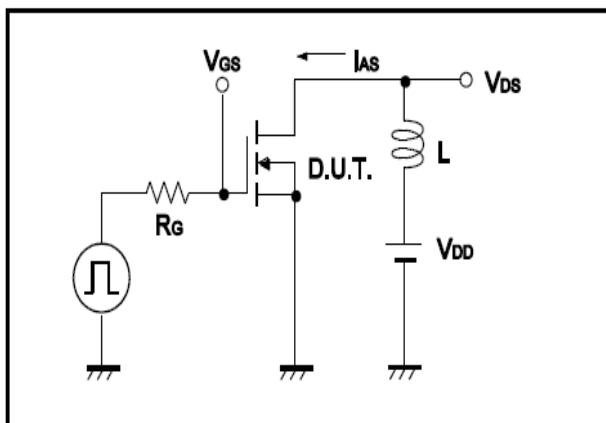
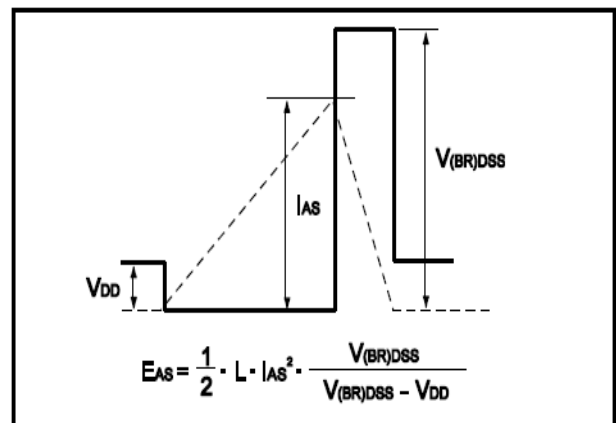


Fig.12 Avalanche Waveform



•Dimensions(SOT23-6)

Unit: mm

