ME7204

N-Channel 30V(D-S) Enhancement MOSFET

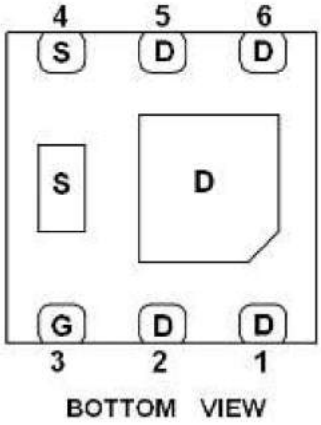
General Description

ME7204, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.
These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

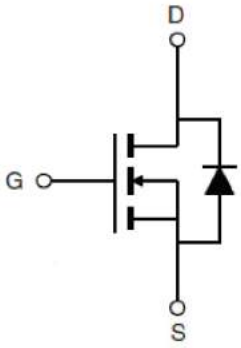
Features

- 30V/3.0A,$R_{DS(ON)}$=15mΩ@V_{GS}=10V
- 30V/3.0A,$R_{DS(ON)}$=20mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- DFN2X2-6L package design

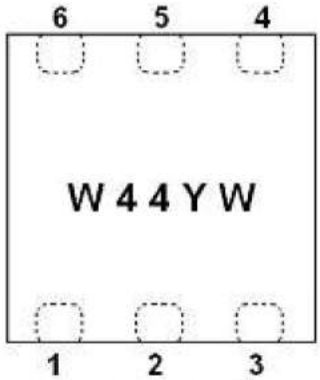
Pin Description (DFN2X2-6L)



BOTTOM VIEW



N-Channel MOSFET



TOP VIEW

Application

- DC/DC Converter
- High Frequency Switching

Pin Define

Pin	Symbol	Description
1,2,5,6	D	Drain
4	S	Source
3	G	Gate

Ordering Information

※ W44 part code
※ Y year code
※ W week code
※ ME7204 : 7" Tape & Reel ; Pb- Free ; Halogen- Free

Absolute Maximum Ratings

(T_A=25℃ Unless otherwise noted)

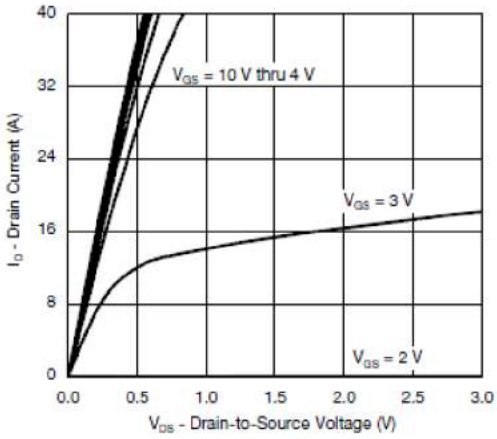
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	11	A
	T_A=70℃		8.8	
Pulsed Drain Current		I_{DM}	40	A
Continuous Source Current(Diode Conduction)		I_S	2.9	A
Power Dissipation	T_A=25℃	P_D	3.5	W
	T_A=70℃		2.2	
Operating Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	36	℃/W

Electrical Characteristics

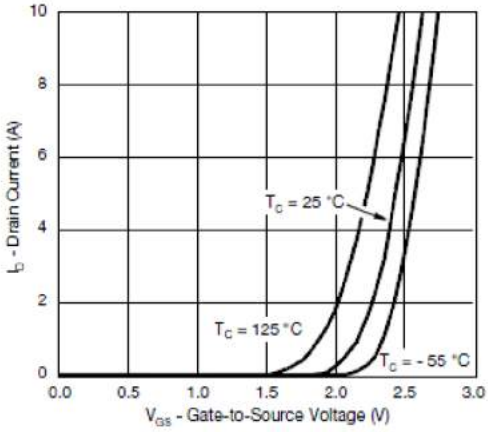
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.0		2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	uA
		V_{DS}=24V,V_{GS}=0V T_J=85℃			10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≧5V,V_{GS}=10V	20			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=3.0A		11	15	mΩ
		V_{GS}=4.5V,I_D=3.0A		14	20	
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=7.4A		24		S
Diode Forward Voltage	V_{SD}	I_S=3.0A,V_{GS}=0V		0.85	1.3	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=4.5V I_D≡11A		5	10	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			1.7		
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V f=1MHz		560		pF
Output Capacitance	C_{oss}			125		
Reverse Transfer Capacitance	C_{rss}			55		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=1.7Ω I_D≡8.8A,V_{GEN}=4.5V R_G=1Ω		12	25	ns
	t_r			12	25	
Turn-Off Time	$t_{d(off)}$			15	30	
	t_f			10	20	

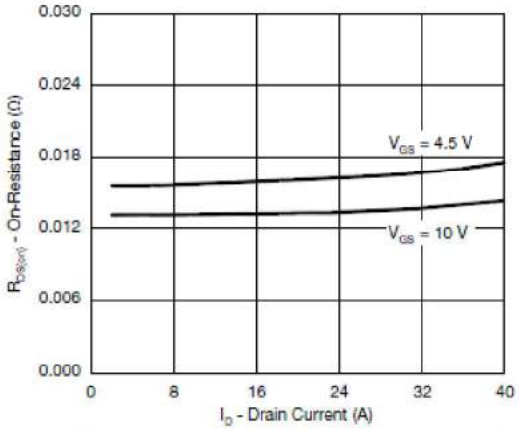
Typical Characteristics



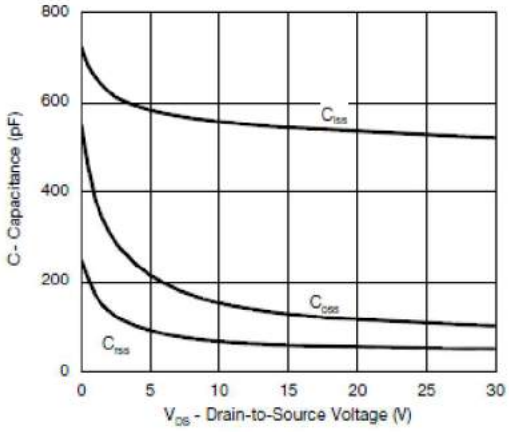
Output Characteristics



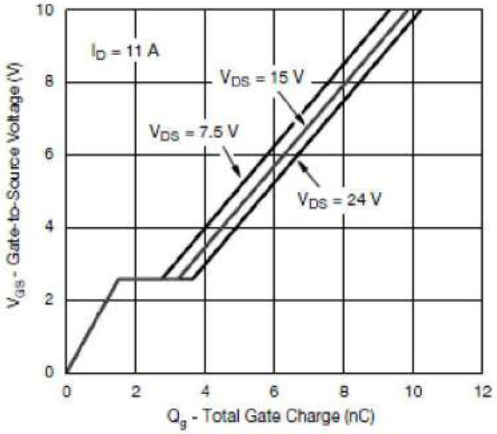
Transfer Characteristics



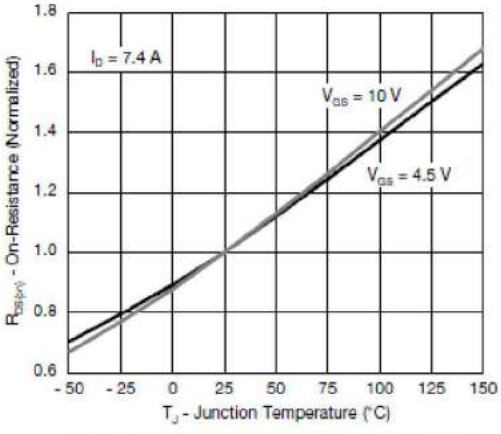
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

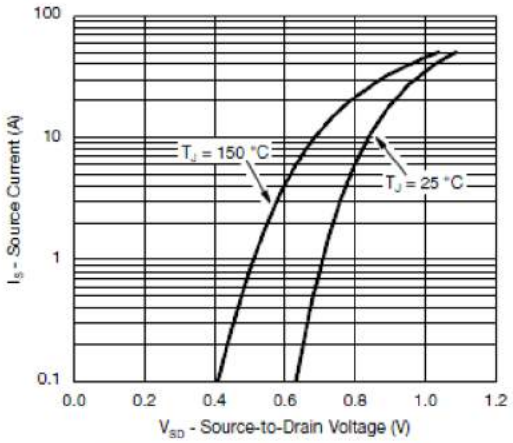


Gate Charge

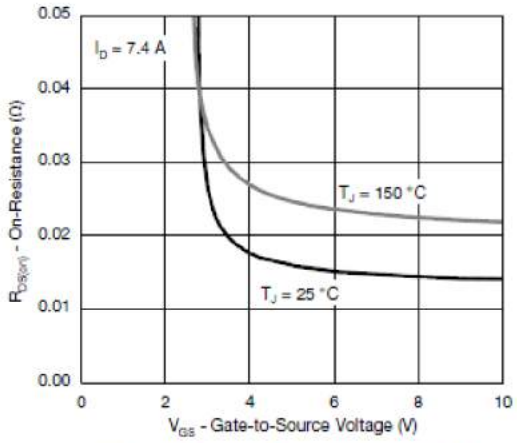


On-Resistance vs. Junction Temperature

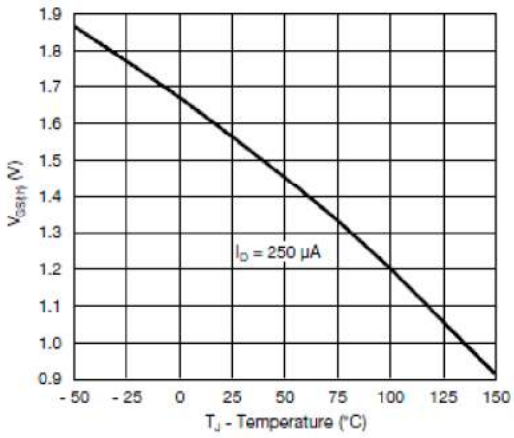
Typical Characteristics



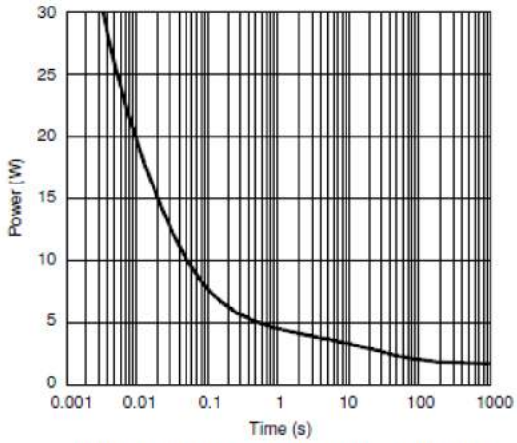
Source-Drain Diode Forward Voltage



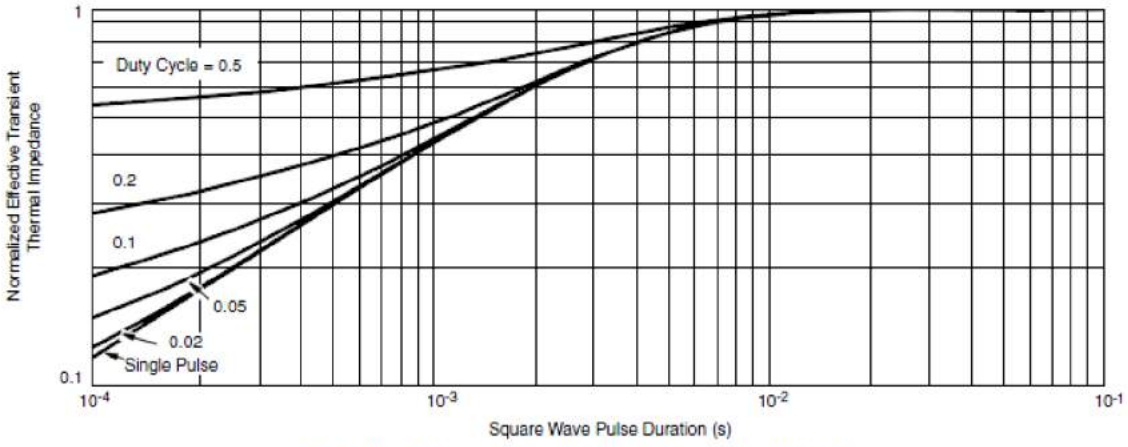
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



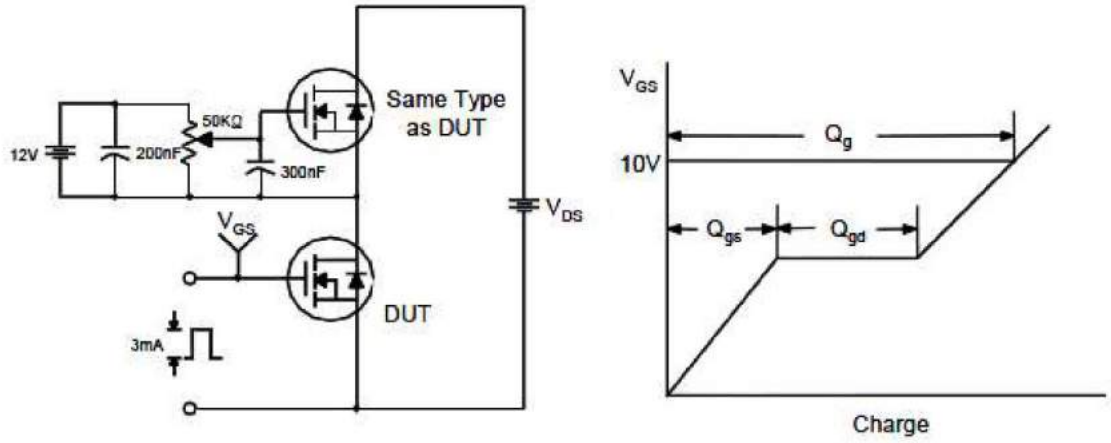
Single Pulse Power (Junction-to-Ambient)



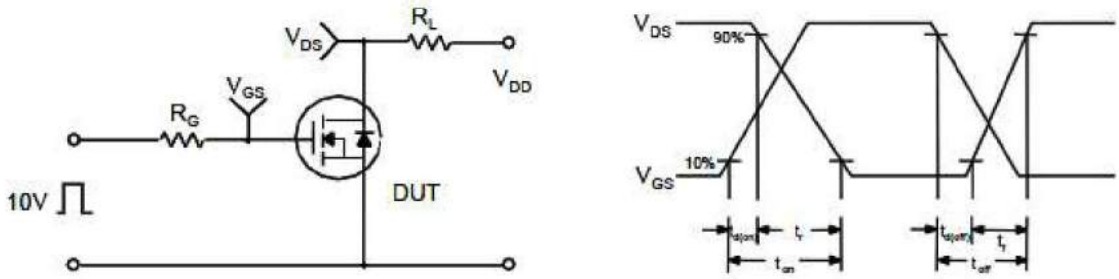
Normalized Thermal Transient Impedance, Junction-to-Case

Typical Characteristics

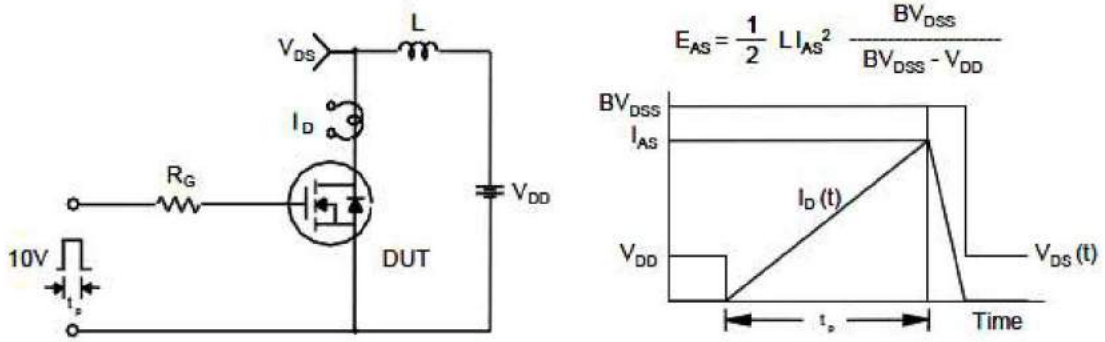
Gate Charge Test Circuit & Waveform



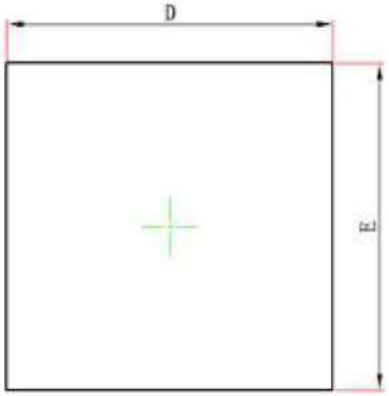
Resistive Switching Test Circuit & Waveforms



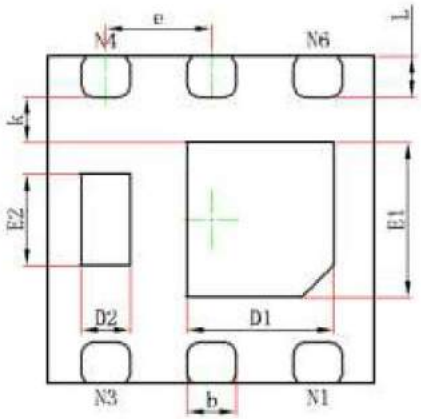
Unclamped Inductive Switching Test Circuit & Waveforms



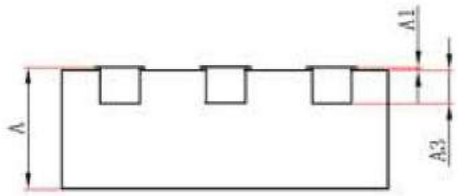
Package Information (DFN2X2-6L)



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013