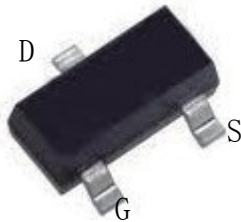
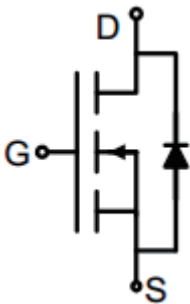


**Chimicron****CM2304****N-Channel Enhancement Mode Power MOSFET**

30VDS/ ±20VGS/3. 6A (ID)	Part No	CM2304		
Description The NCE2304 uses advanced trench technology to provide excellent R DS(ON) and low gate charge .This device is suitable for use as a load switch or in PWM applications.. Application ●Battery protection ●Load switch ●Power management	Product Summary VDS = 30V,I D = 3.6A RDS(ON) < 73mΩ @ VGS=4.5V RDS(ON) <58m Ω @ VGS=10V 			
 SOT-23 Package				
Absolute Maximum Ratings (TA=25°Cunless otherwise noted)				
Parameter	Symbol	Maximum	Units	
Drain-Source Voltage	VDS	30	V	
Gate-Source Voltage	VGS	±20	V	
Continuous Current Drain	ID	3. 6	A	
Pulsed Drain Current (Note 1)	IDM	15	A	
Power Description	Pd	1. 7	W	
Operating Junction and Storage Temperature Range	Tj, TSTG	−55° C to 150°	°C	
Thermal Resistance Junction to Ambient (Note 2)	RθJA	73. 5	°C/w	

TAIWAN CHIMICRON SEMICONDUCTOR CO., LTD



Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	symbol	Test Conditions	Min	Type	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID=250μA	30	33	-	V
Zero Gate Voltage Drain Current	IDSS	VDS=30V,VGS=0V	-	-	1	μA
Gate-Body Leakage Current	IGSS	VGS=±20V,VDS=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=250uA	1.2	1.5	2.2	V
Drain-Source On-State Resistance	RDS(ON)	VGS=4.5V, ID=3.1A	-	61	73	mΩ
		VGS=10V, ID=3.6A		47	58	
Forward Trans conductance	gFS	VDS=5V,ID=3.6A	-	11	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	Ciss	VDS=15V,VGS=0V, F=1.0MHz	-	230	-	PF
Output Capacitance	Coss		-	40	-	PF
Reverse Transfer Capacitance	Crss		-	17	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	td(on)	VDD=10V,I D=3.6A VGS=4.5V,R GEN=6Ω	-	10	-	nS
Turn-on Rise Time	tr		-	50	-	nS
Turn-Off Delay Time	td(off)		-	10	-	nS
Turn-Off Fall Time	td(off)		-	20	-	nS
Total Gate Charge	Qg	VDS=15V,I D=3.6A, VGS=10V		4.0	10	nC
Gate-Source Charge	Qgs			0.75	-	nC
Gate-Drain Charge	Qgd		-	0.65	-	nC
Drain-Source Diode Characteristics						
Diode Forward Current (Note 2)	IS		-	-	1.6	A
Diode Forward Voltage (Note 3)	VSD	VGS=0V,IS=2.7A	-	0.8	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤10 sec.
3. Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%.
4. Guaranteed by design, not subject to production



Typical Electrical and Thermal Characteristics

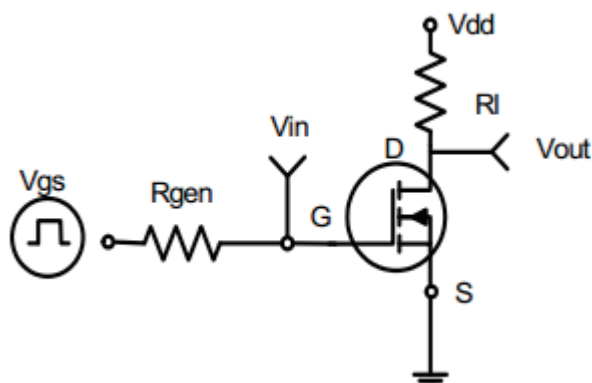


Figure 1: Switching Test Circuit

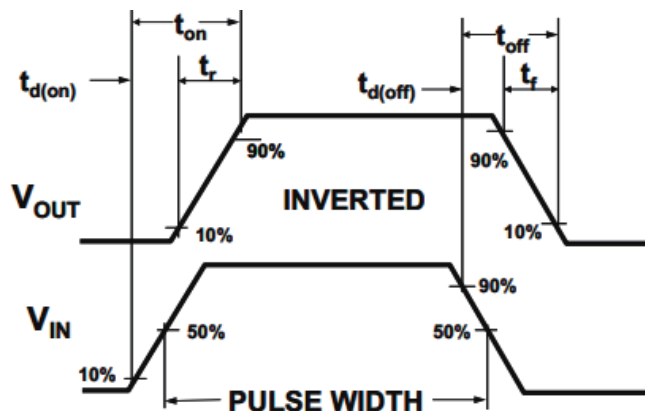


Figure 2: Switching Waveforms

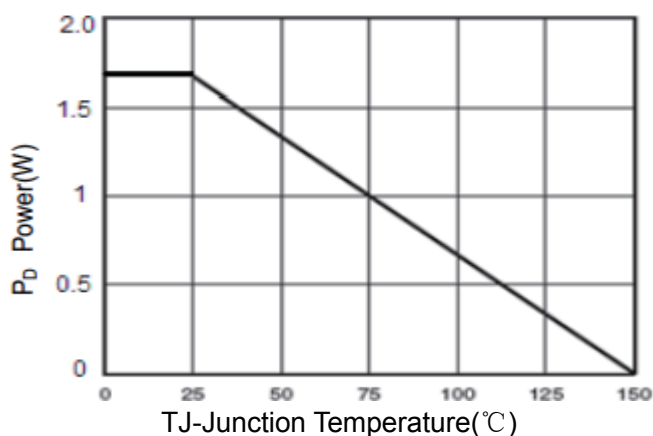


Figure 3 Power Dissipation

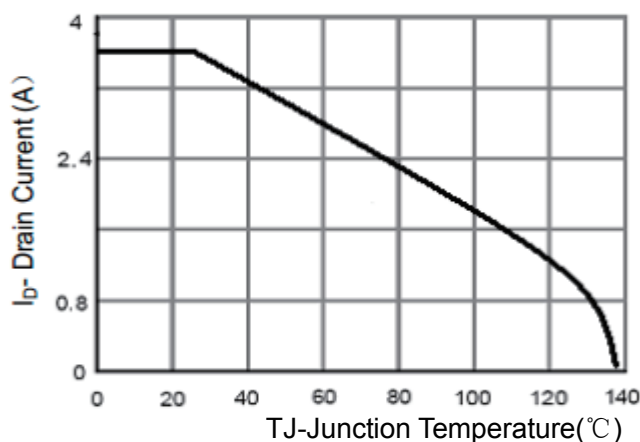


Figure 4 Drain Current

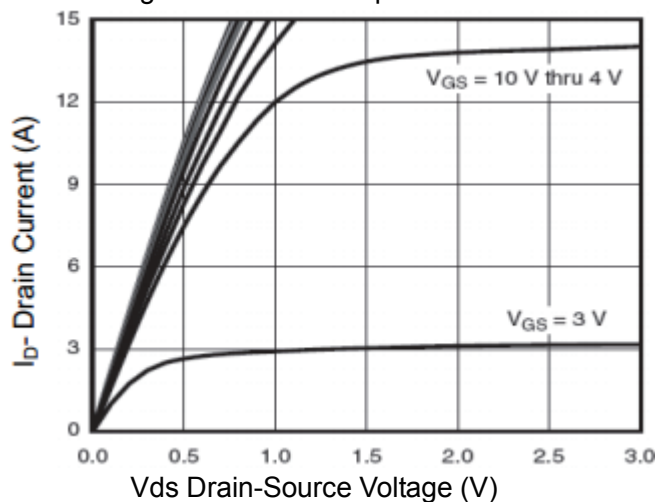


Figure 5 Output CHARACTERISTICS

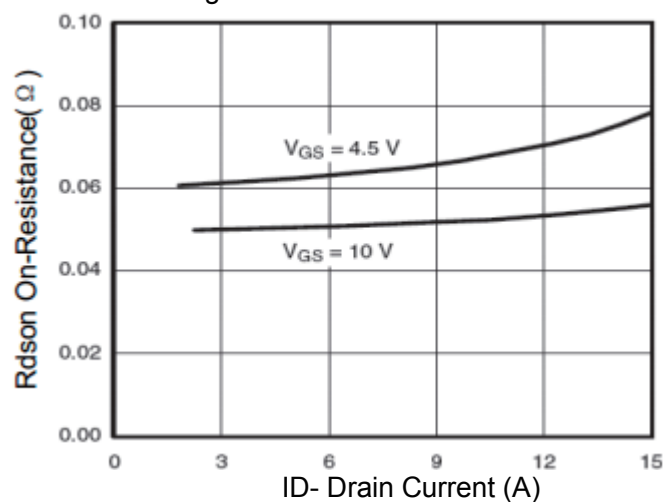


Figure 6 Drain-Source On-Resistance

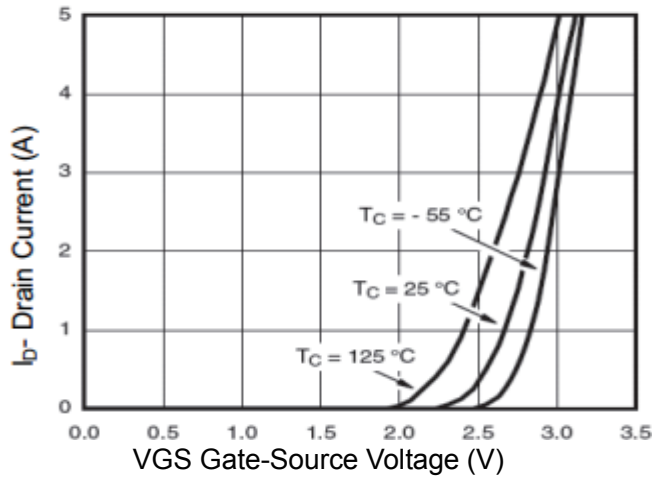


Figure 7 Transfer Characteristics

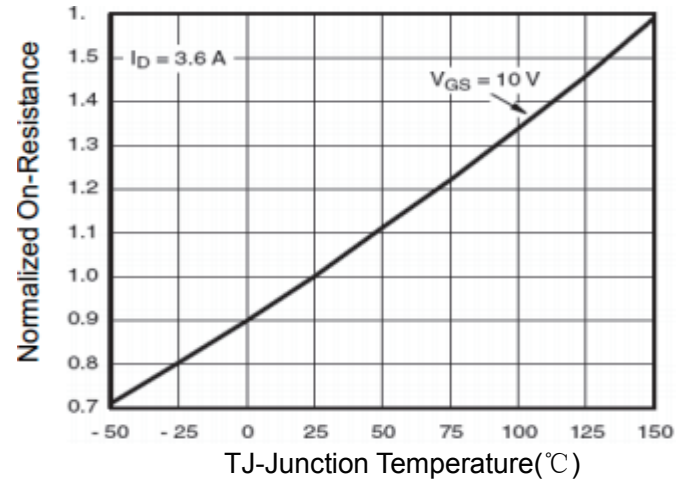


Figure 8 Drain-Source On-Resistance

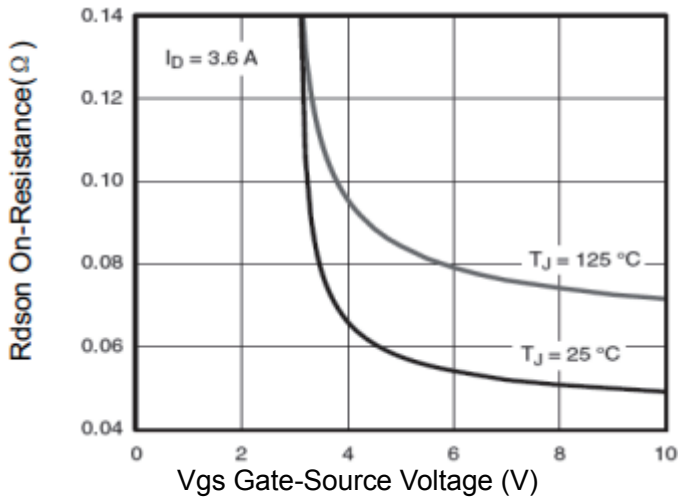


Figure 9 Rdson vs VGS

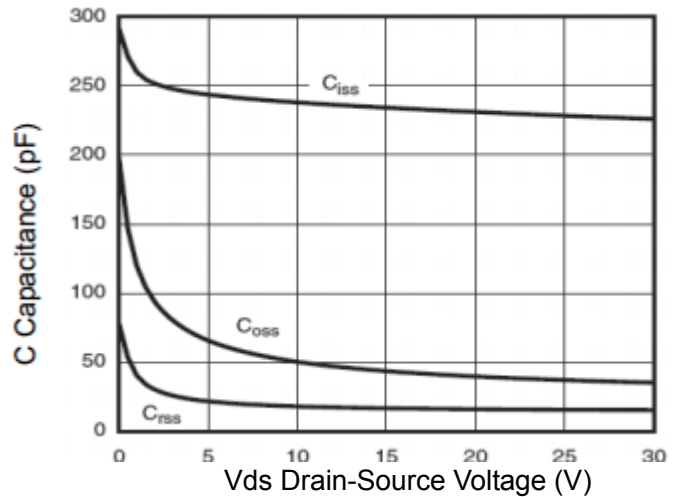


Figure 10 Capacitance vs Vds

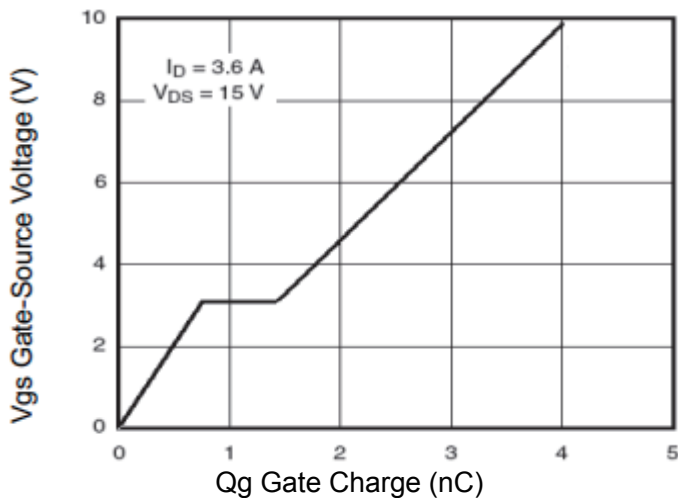


Figure 11 Gate Charge

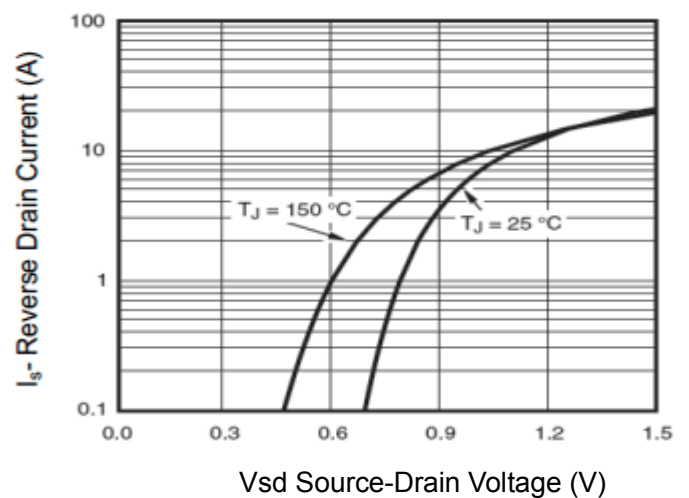
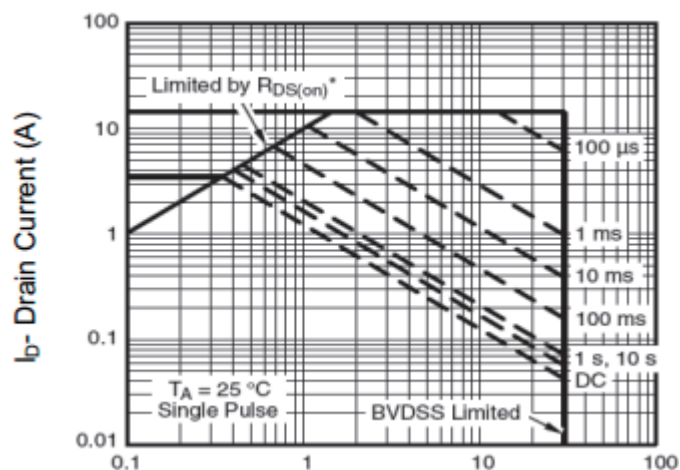
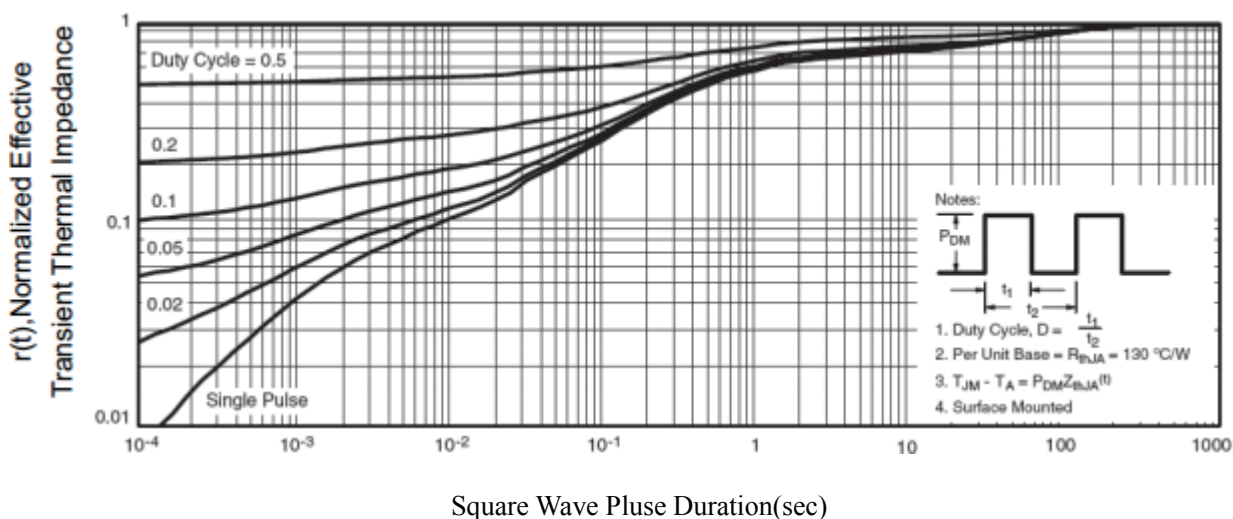


Figure 12 Source- Drain Diode Forward



Vds Drain-Source Voltage (V)
Figure 13 Safe Operation Area



Square Wave Pluse Duration(sec)
Figure 14 Normalized Maximum Transient Thermal Impedance