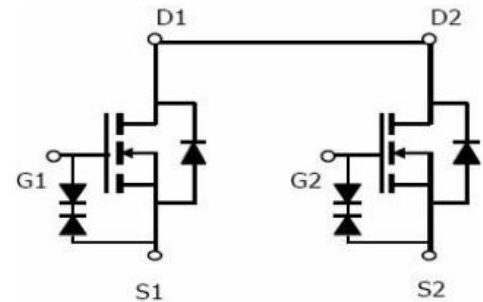




N-Channel Enhancement Mode Power MOSFET

Description

The MX2808 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications. It is ESD protected..



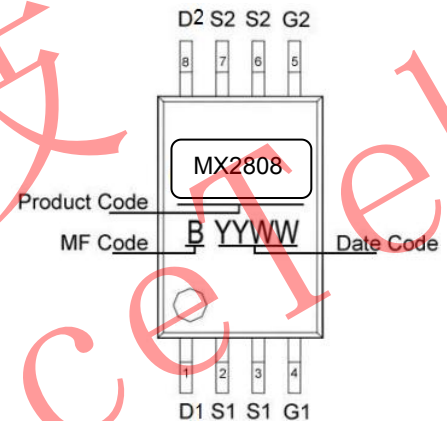
Schematic diagram

General Features

- ◆ $V_{DS} = 20V$, $I_D = 7A$
 @ $V_{GS} = 4.5V$ $R_{DS(ON)} = 14.5m\Omega$
 @ $V_{GS} = 2.5V$ $R_{DS(ON)} = 19m\Omega$
 @ $V_{GS} = 1.8V$ $R_{DS(ON)} = 28m\Omega$
 ESD Rating: 2000V HBM
- ◆ High power and current handling capability
- ◆ Lead free product is acquired
- ◆ Surface mount package

Application

- ◆ PWM applications
- ◆ Load switch



Marking and pin assignment

Ordering Information

Part Number	Marking	Storage Temperature	Package	Devices Per Reel
MX2808	MX2808	-55°C to +150°C	TSSOP-8	3000

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	7	A
Drain Current-Pulsed (Note 1)	I_{DM}	30	A
Maximum Power Dissipation	P_D	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	°C



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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 10	μA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	-	1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=6.8A$	-	14	18	m Ω
		$V_{GS}=2.5V, I_D=5.0A$	-	19	25	m Ω
		$V_{GS}=1.8V, I_D=4A$	-	28	34	m Ω
Dynamic Characteristics (Note4)						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V,$ $F=1.0MHz$	-	845	-	PF
Output Capacitance	C_{oss}		-	194	-	PF
Reverse Transfer Capacitance	C_{rss}		-	185	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, R_L=10\Omega$	-	7	-	nS
Turn-on Rise Time	t_r		-	11	-	nS
Turn-Off Delay Time	$t_{d(off)}$	$V_{GS}=4.5V, R_{GEN}=6\Omega$	-	63	-	nS
Turn-Off Fall Time	t_f	Ω	-	39	-	nS
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=6.8A,$ $V_{GS}=4.5V$	-	18	-	nC
Gate-Source Charge	Q_{gs}		-	1.3	-	nC
Gate-Drain Charge	Q_{gd}		-	7.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_{sd}=1.5A$	-	0.7	1.0	V
Diode Forward Current (Note 2)	I_s	$TC=25^\circ$	-	-	2.5	A

Notes:

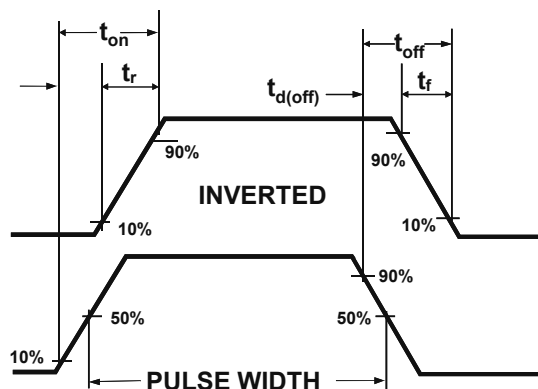
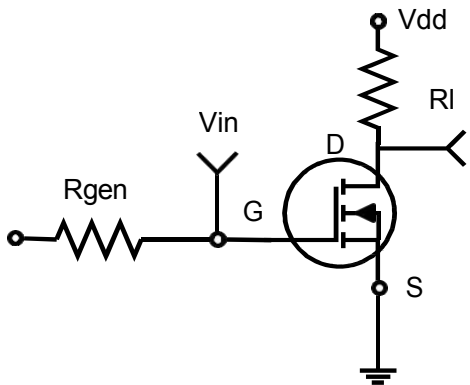
- a. surface mounted on FR4 board, $t \leq 10sec$
- b. pulse test: pulse width $\leq 300\mu s$, duty $\leq 2\%$
- c. guaranteed by design, not subject to production testing

Thermal Characteristics

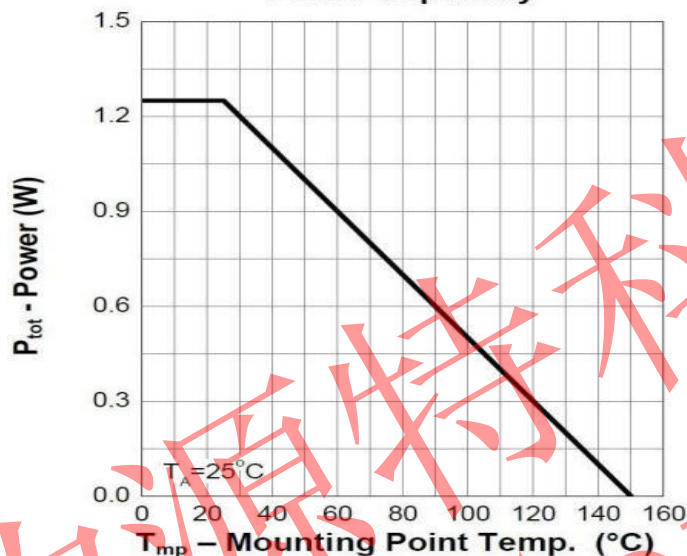
Thermal Resistance junction-to ambient	Rth JA	100	$^\circ C/W$
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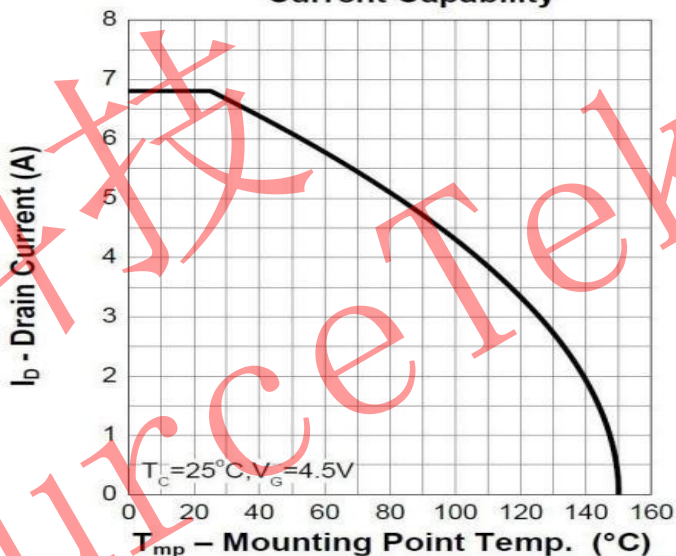
TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



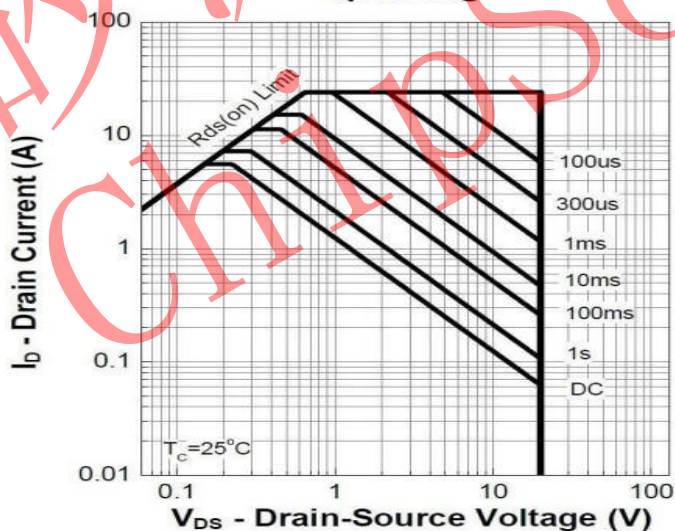
Power Capability



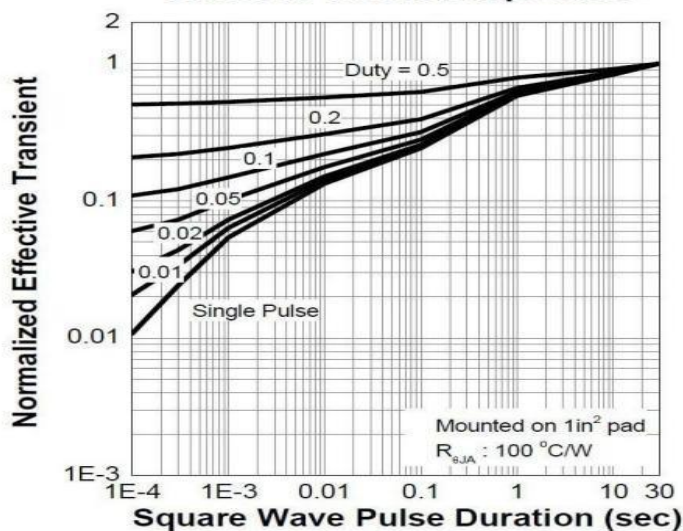
Current Capability

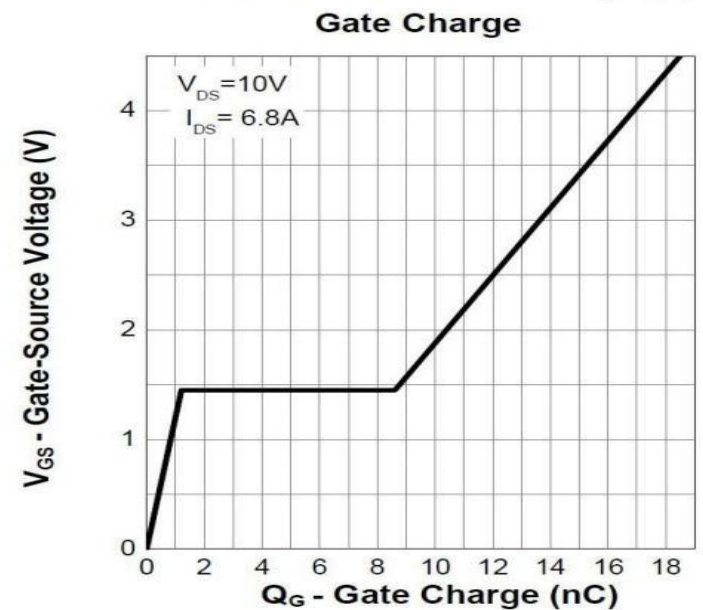
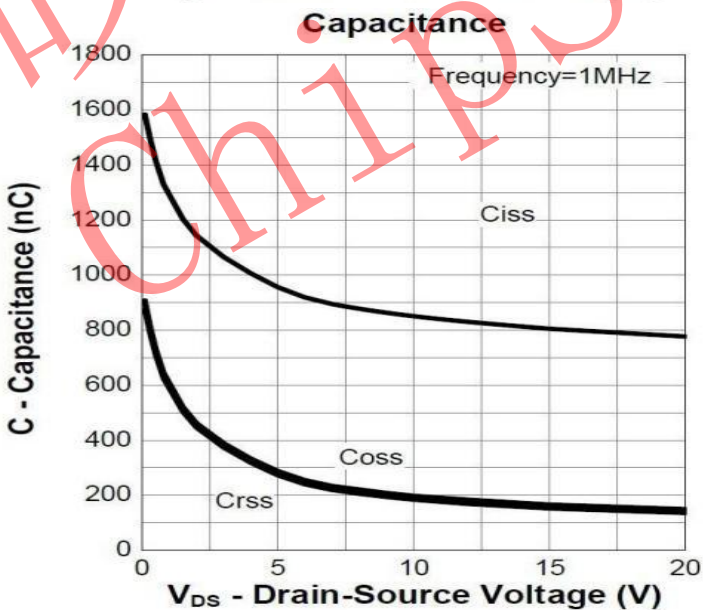
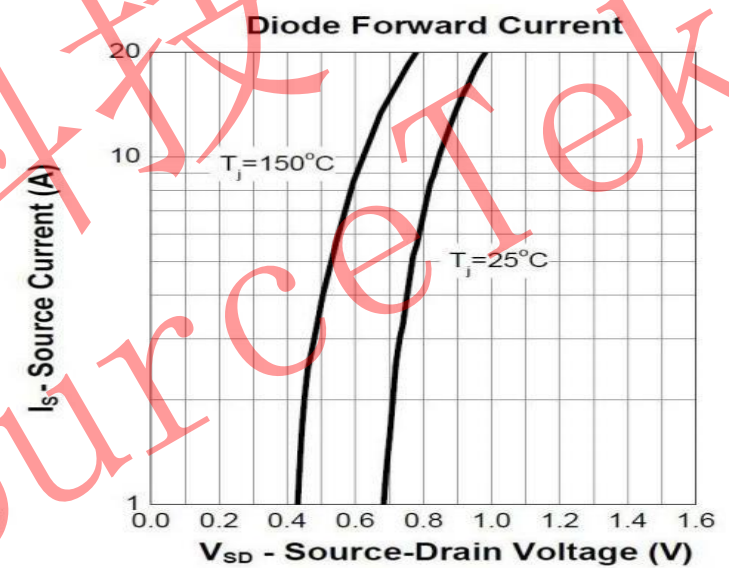
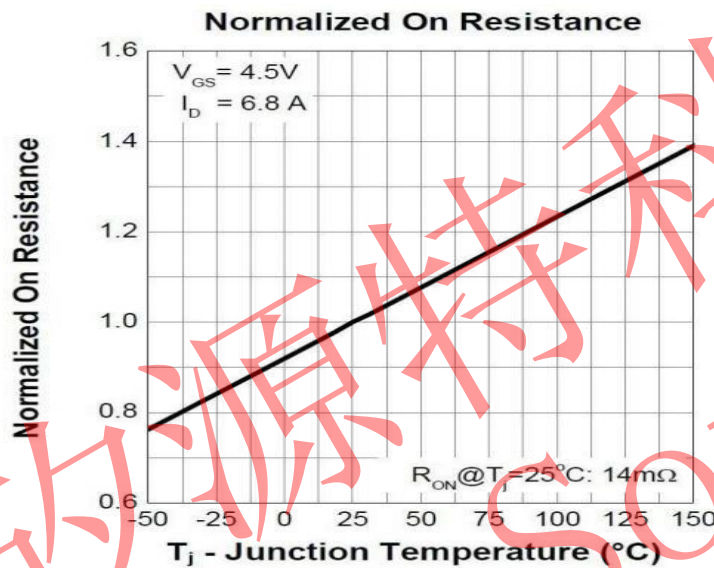
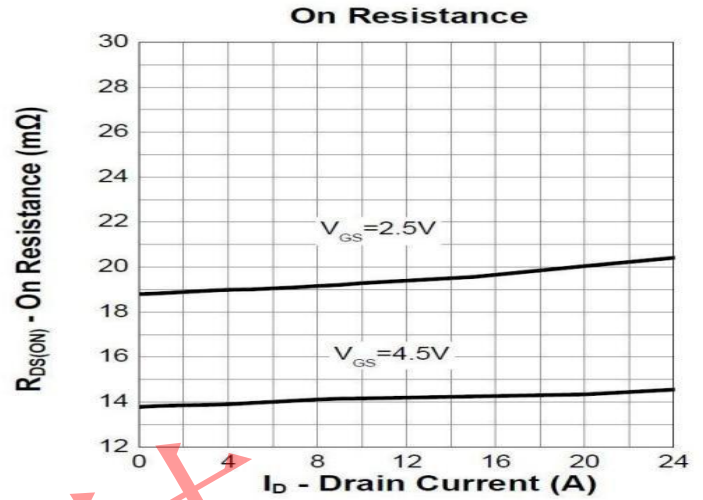
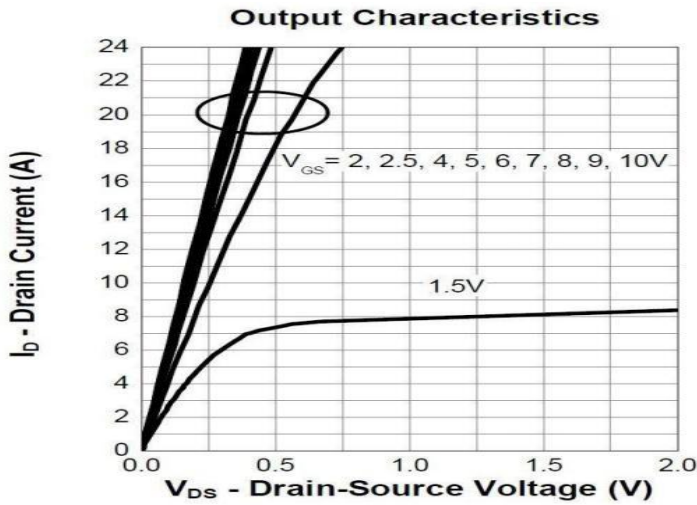


Operating



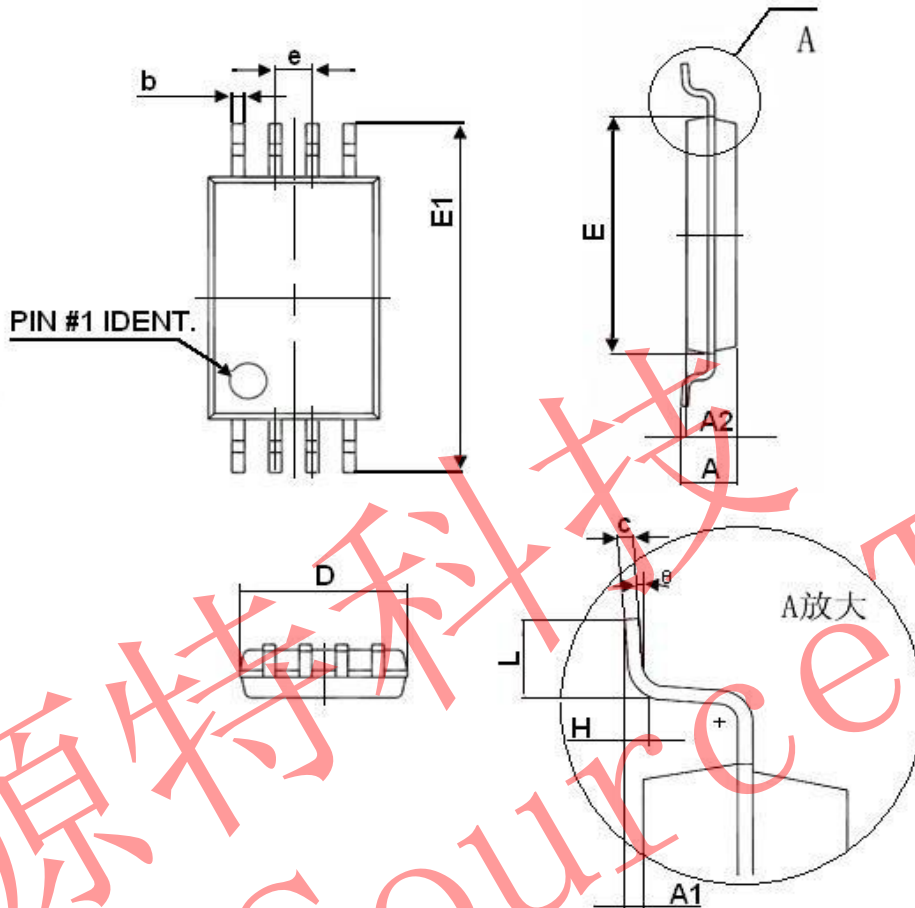
Transient Thermal Impedance







TSSOP-8 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters	
	Min	Max
D	2.900	3.100
E	4.300	4.500
b	0.190	0.300
c	0.090	0.200
E1	6.250	6.550
A		1.100
A2	0.800	1.000
A1	0.020	0.150
e	0.65(BSC)	
L	0.500	0.700
H	0.25(TYP)	
Θ	1°	7°