

Description

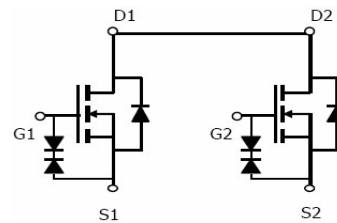
The MS2007 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

General Features

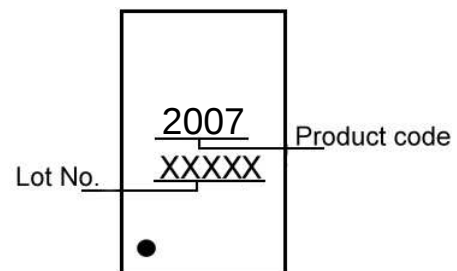
- $V_{DS} = 20V, I_D = 8A$
 $R_{DS(ON)} < 14.5m\Omega @ V_{GS}=4.5V$
 $R_{DS(ON)} < 15.5m\Omega @ V_{GS}=4.0V$
 $R_{DS(ON)} < 16m\Omega @ V_{GS}=3.8V$
 $R_{DS(ON)} < 17m\Omega @ V_{GS}=3.1V$
 $R_{DS(ON)} < 22m\Omega @ V_{GS}=2.5V$
- ESD Protected
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package

Application

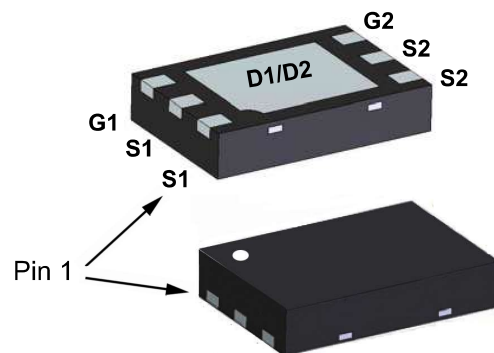
- PWM application
- Load switch



Schematic diagram



Marking Description



DFN2*3-6L

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	8	A
Pulsed Drain Current	I_{DM}^*	45	A
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^\circ\text{C}$

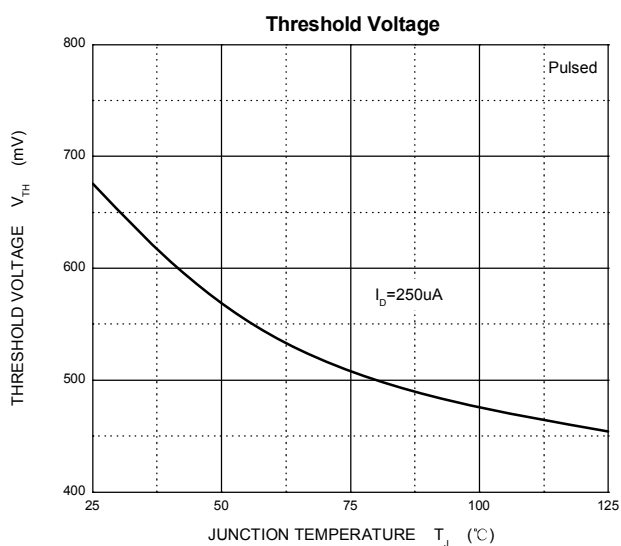
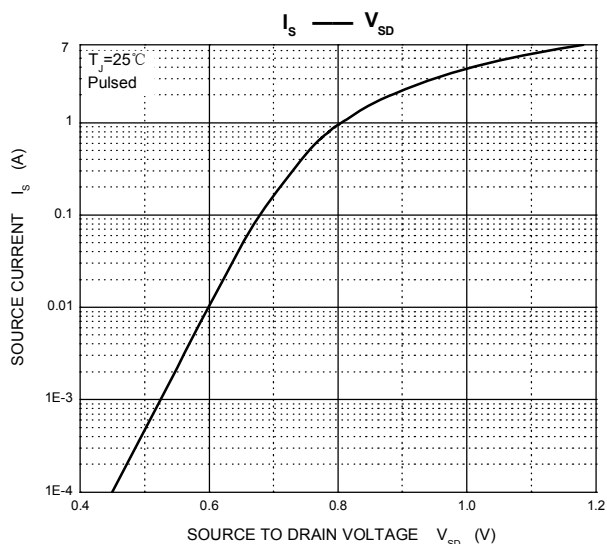
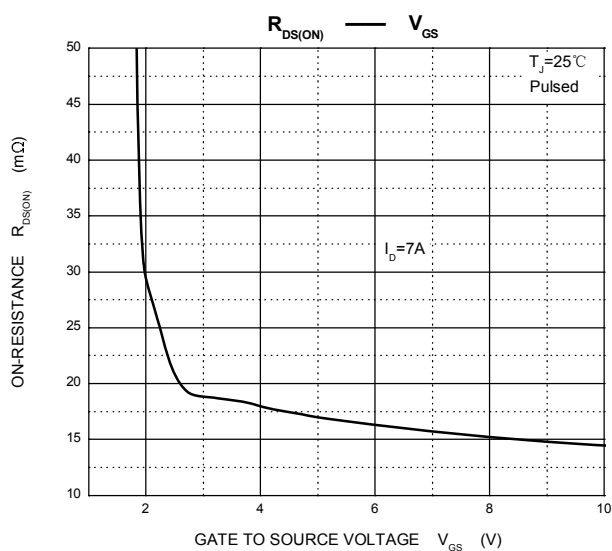
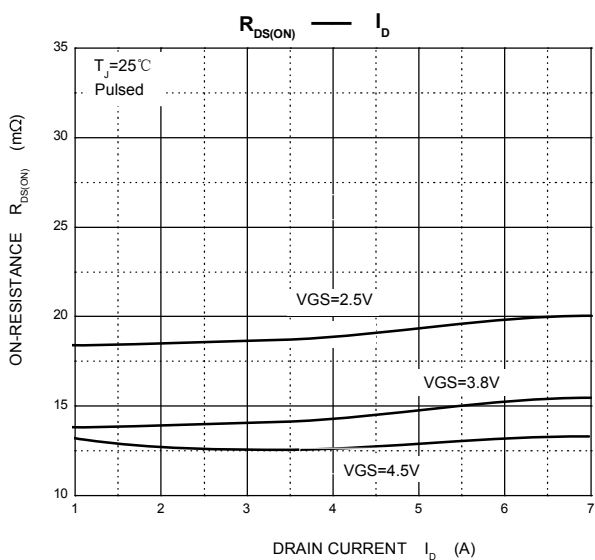
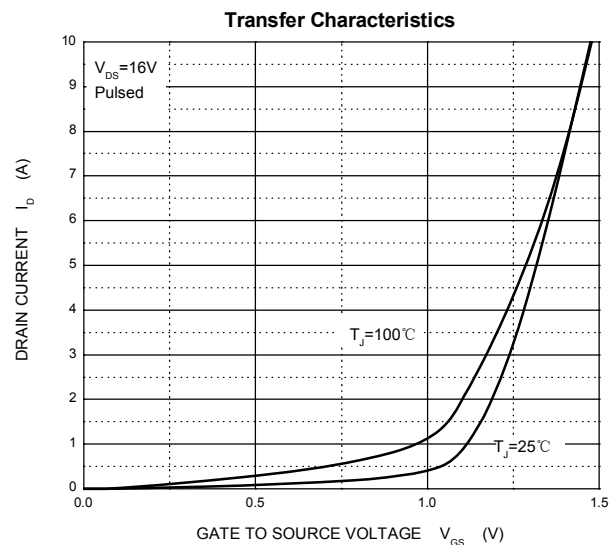
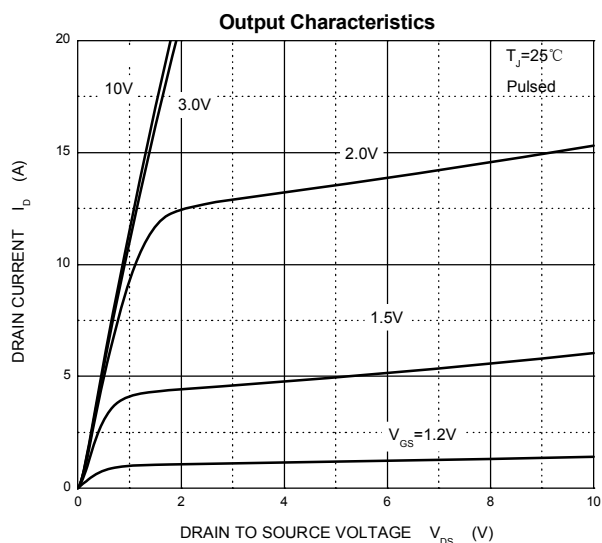
MOSFET ELECTRICAL CHARACTERISTICS
 $T_a = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =18V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±10	μA
Gate threshold voltage (note 1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1	V
Drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} =4.5V, I _D =3A	10	12	14.5	mΩ
		V _{GS} =4.0V, I _D =3A	10.5	12.5	15.5	mΩ
		V _{GS} =3.8V, I _D =3A	10.8	13	16	mΩ
		V _{GS} =3.1V, I _D =3A	12	14	17	mΩ
		V _{GS} =2.5V, I _D =3A	13	16.5	22	mΩ
Forward tranconductance (note 1)	g _{FS}	V _{DS} =5V, I _D =7A	9			S
Diode forward voltage(note 1)	V _{SD}	I _S =1A, V _{GS} = 0V			1	V
DYNAMIC PARAMETERS (note 2)						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz		1150		pF
Output Capacitance	C _{oss}			185		pF
Reverse Transfer Capacitance	C _{rss}			145		pF
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =7A		15		nC
Gate-source charge	Q _{gs}			0.8		nC
Gate-drain charge	Q _{gd}			3.2		nC
SWITCHING PARAMETERS(note 2)						
Turn-on delay time	t _{d(on)}	V _{GS} =5V, V _{DD} =10V, R _L =1.35Ω, R _{GEN} =3Ω		6		ns
Turn-on rise time	t _r			13		ns
Turn-off delay time	t _{d(off)}			52		ns
Turn-off fall time	t _f			16		ns
Drain-Source Diode Characteristics						
Diode Forward Current	I _S		-	-	6.0	A

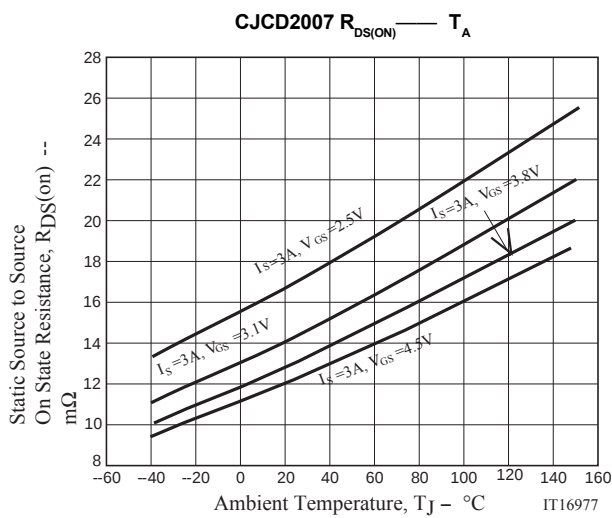
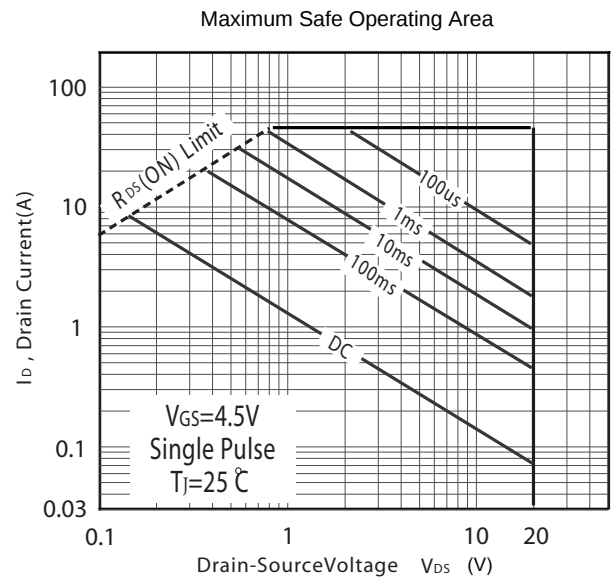
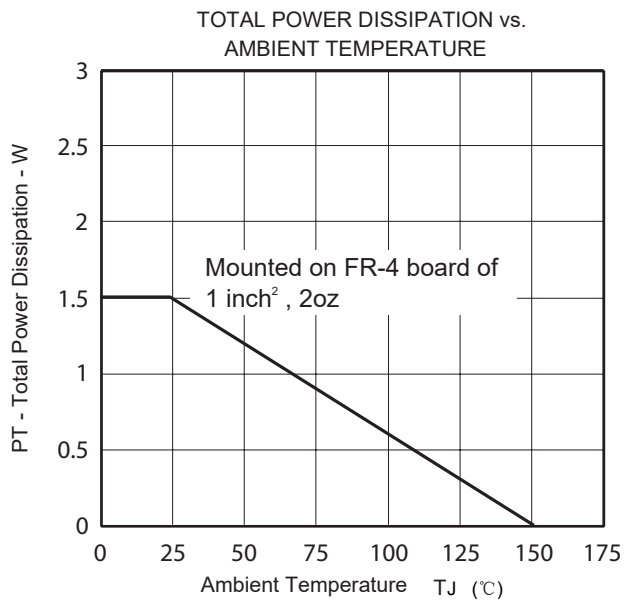
Notes :

1. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.
2. Guaranteed by design, not subject to production testing.

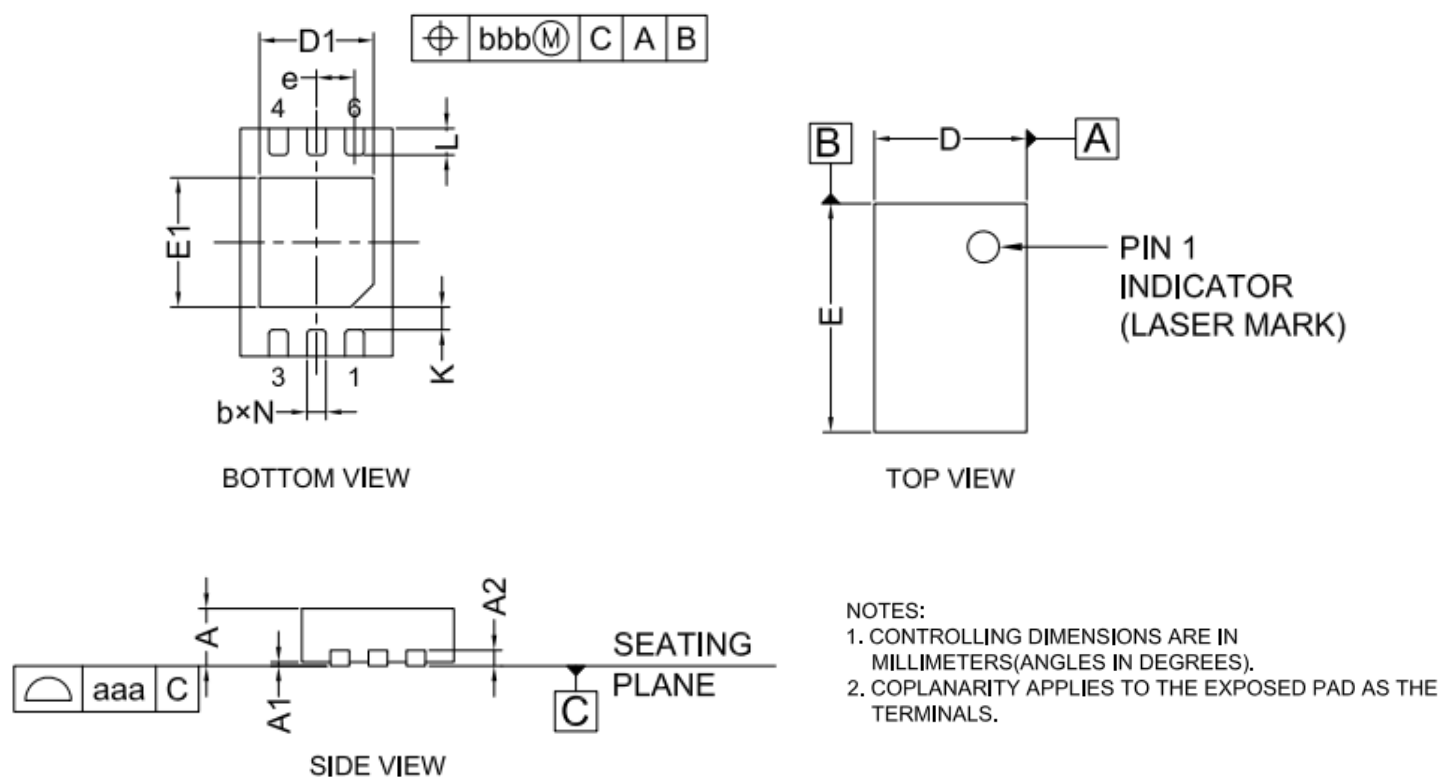
Typical Characteristics



Typical Characteristics



DFN2X3-6L PACKAGE OUTLINE DIMENSIONS



COMMON DIMENSIONS (UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2	0.203		
b	0.20	0.25	0.30
D	1.95	2.00	2.05
D1	1.45	1.50	1.55
E	2.95	3.00	3.05
E1	1.65	1.70	1.75
e	0.50BSC		
L	0.30	0.35	0.40
K	0.20MIN		
N	6		
aaa	0.08		
bbb	0.10		