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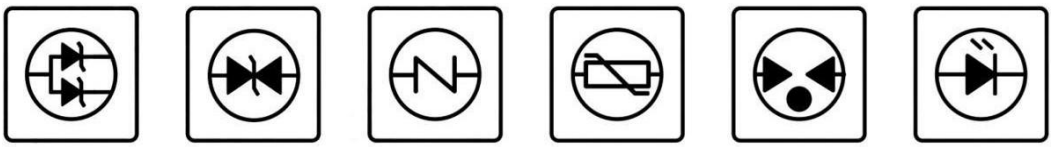
SEMICONDUCTOR



NX3008NBKMB-MS

Product specification

NX3008NBKMB-MS

N-Channel Enhancement Mode MOSFET

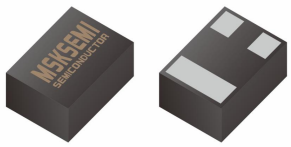
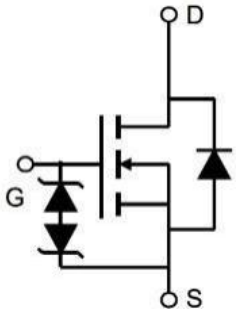
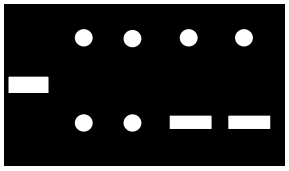
Features

- VDS= 30V
- ID= 1.0A
- RDS(ON) (at VGS= 4.5V) =220mΩ（Typ)
- RDS(ON) (at VGS= 2.5V) =245mΩ（Typ)
- ESD Capability (HBM): 2KV

Application

- Load Switch for Portable Devices
- Voltage controlled small signal switch

Reference News

DFN-3(1X0.6)	GRAPHIC SYMBOL	MARKING
		

Absolute Maximum Ratings (at T_a = 25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	1.0	A
Peak Drain Current, Pulsed [1]	I_{DM}	4.2	A
Power Dissipation [2]	P_{tot}	0.7	W
Operating Junction	T_J	-55~150	℃
Storage Temperature Range	T_{stg}	-55~150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient [2]	$R_{\theta JA}$	175	℃/W

Note:

[1] Pulse width ≤100us, duty cycle ≤1%, limited by Tjmax

[2] Device mounted on FR-4 substrate PC board, 2ozcopper, with 1-inch square copper plate in still air.

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Characteristics at Ta = 25℃ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at I_D = 250 μA	BV_{DSS}	30			V
Drain-Source Leakage Current at V_{DS} = 30 V	I_{DSS}			1	μA
Gate Leakage Current at V_{GS} = ± 12 V	I_{GSS}			±10	μA
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 250 μA	$V_{GS(th)}$	0.6	0.9	1.5	V
Drain-Source On-State Resistance at V_{GS} = 4.5 V, I_D = 1.0A at V_{GS} = 2.5 V, I_D = 0.8A at V_{GS} = 1.8 V, I_D= 0.6A	$R_{DS(on)}$		220 245 290	280 320 500	mΩ
DYNAMIC PARAMETERS					
Forward Transconductance at V_{DS} = 10 V, I_D = 800mA	g_{fs}	1.0			S
Input Capacitance at V_{GS} = 0 V, V_{DS} = 10 V, f = 1 MHz	C_{iss}		49		pF
Output Capacitance at V_{GS} = 0 V, V_{DS} = 10 V, f = 1 MHz	C_{oss}		20		pF
Reverse Transfer Capacitance at V_{GS} = 0 V, V_{DS} = 10 V, f = 1 MHz	C_{rss}		12		pF
Gate charge total at V_{DS} =10 V, I_D = 1 A, V_{GS} =4.5 V	Q_g		2.1		nC
Gate to Source Charge at V_{DS} =10 V, I_D = 1 A, V_{GS} =4.5 V	Q_{gs}		0.7		nC
Gate to Drain Charge at V_{DS} =10 V, I_D = 1 A, V_{GS} =4.5 V	Q_{gd}		0.42		nC
Turn-On Delay Time at V_{GS} = 4.5 V, V_{DS} = 10 V, I_D = 0.5 A, R_g = 10 Ω	$t_{d(on)}$		5.7		ns
Turn-On Rise Time at V_{GS} = 4.5 V, V_{DS} = 10 V, I_D = 0.5 A, R_g = 10 Ω	t_r		4.2		ns
Turn-Off Delay Time at V_{GS} = 4.5 V, V_{DS} = 10 V, I_D = 0.5 A, R_g = 10 Ω	$t_{d(off)}$		15.3		ns
Turn-Off Fall Time at V_{GS} = 4.5 V, V_{DS} = 10 V, I_D = 0.5 A, R_g = 10 Ω	t_f		6.4		ns
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at I_F = 150 mA, V_{GS} = 0 V	V_{DS}			1.2	V
Body Diode Reverse Recovery Time at I_F = 1.0A, di/dt = 100 A / μs	t_{rr}		7.5		ns
Body Diode Reverse Recovery Charge at I_F = 1.0 A, di/dt = 100 A / μs	Q_{rr}		2.5		nC

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ElectricalCharacteristicsCurves

Fig. 1 - Output Charact eristics

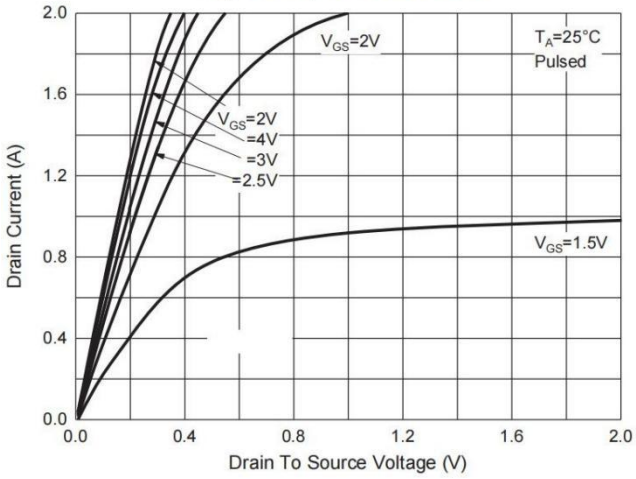


Fig. 2 - Transfer Characteristics

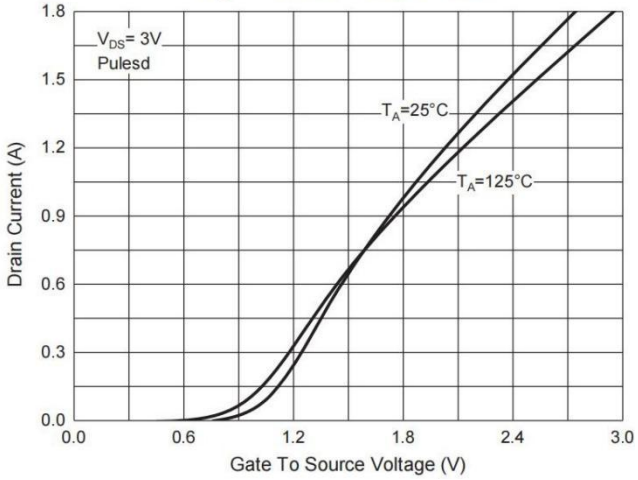


Fig. 3 - $R_{DS(ON)}$—I_D

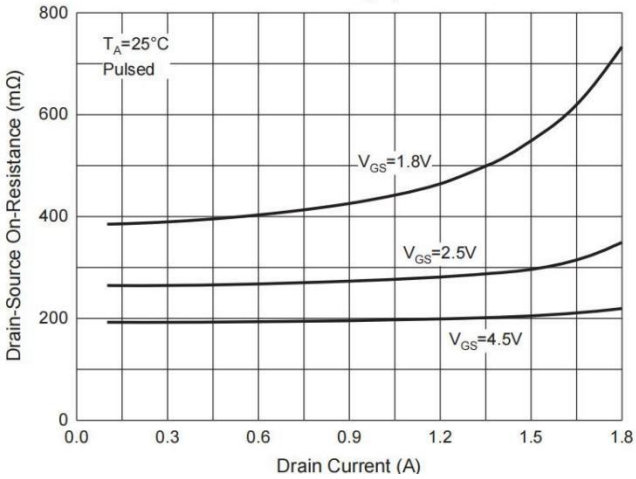


Fig. 4 - $R_{DS(ON)}$—V_{GS}

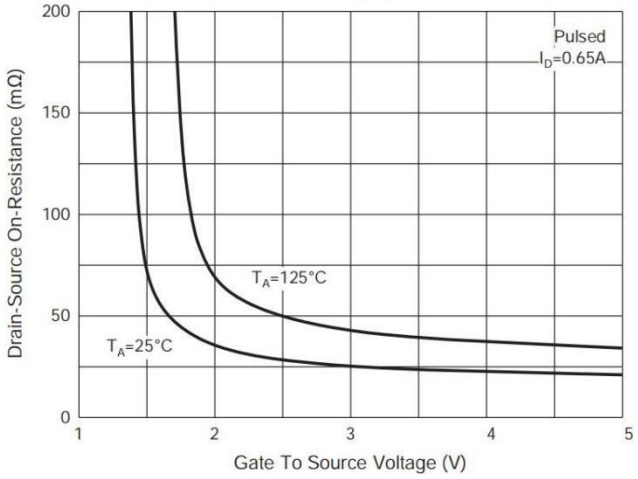


Fig. 3 - I_S—V_{SD}

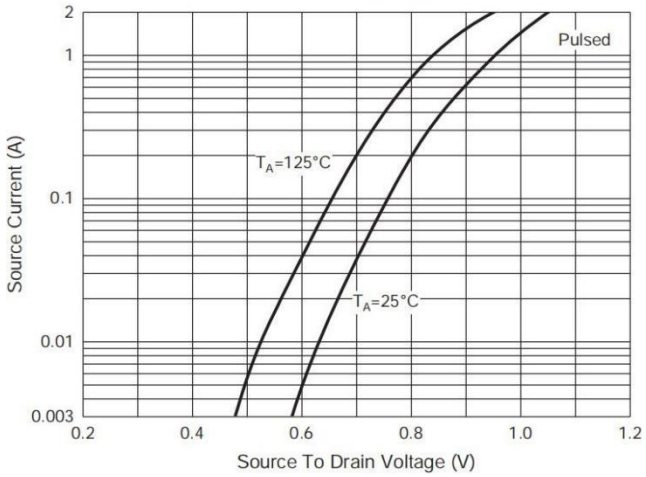
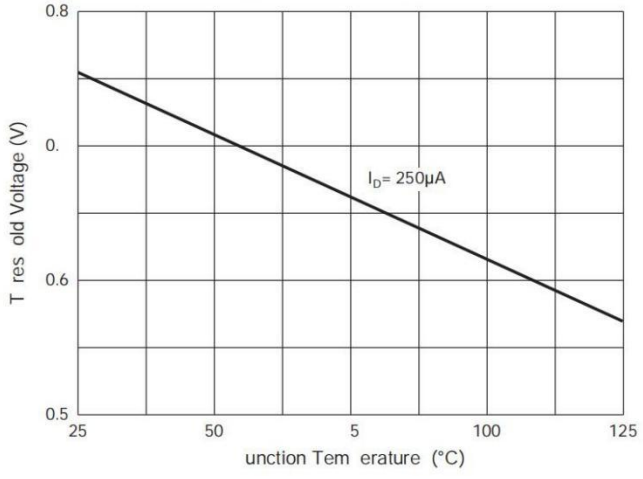


Fig. 6 - T res old Voltage



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Test Circuits

Fig.1-1 Switching times test circuit

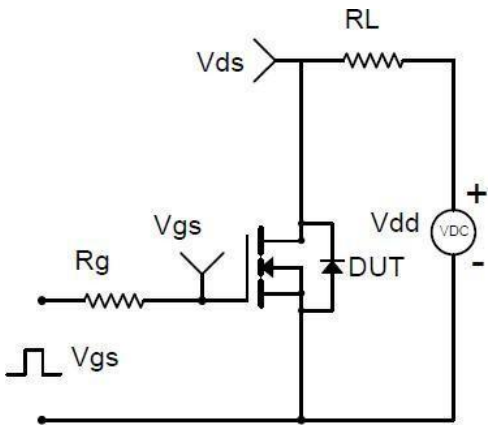


Fig.1-2 Switching Waveform

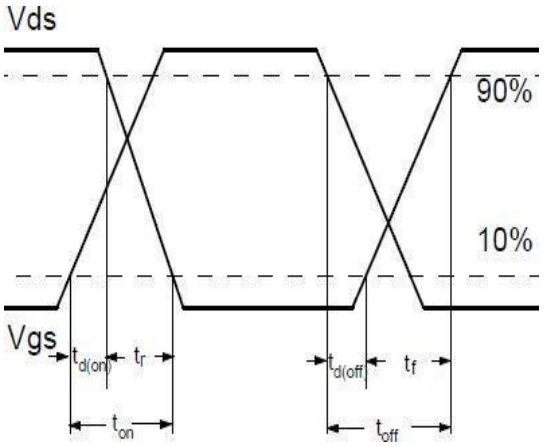


Fig.2-1 Gate charge test circuit

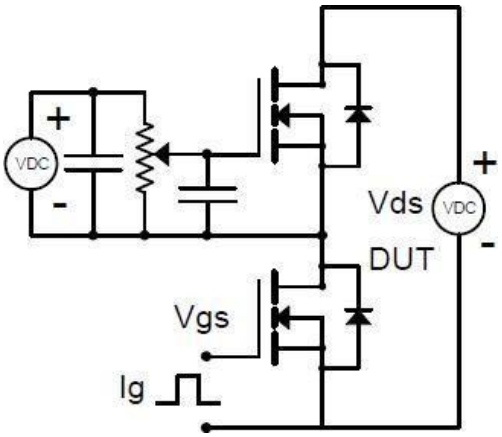


Fig.2-2 Gate charge waveform

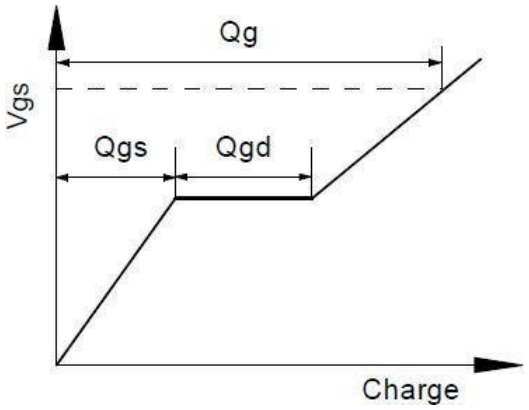


Fig.3-1 Avalanche test circuit

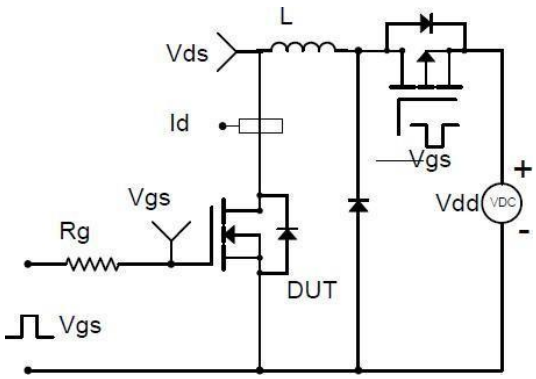
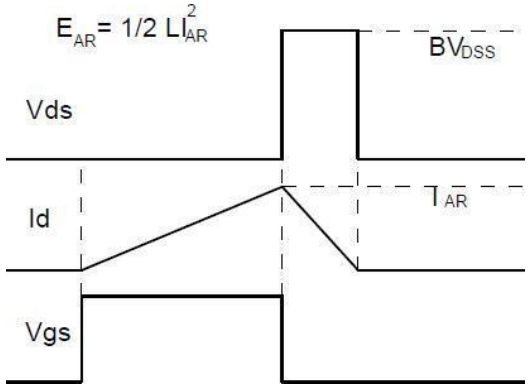


Fig.3-2 Avalanche waveform



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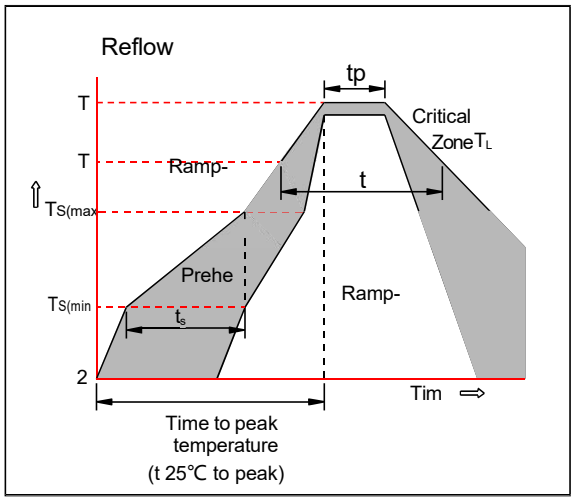
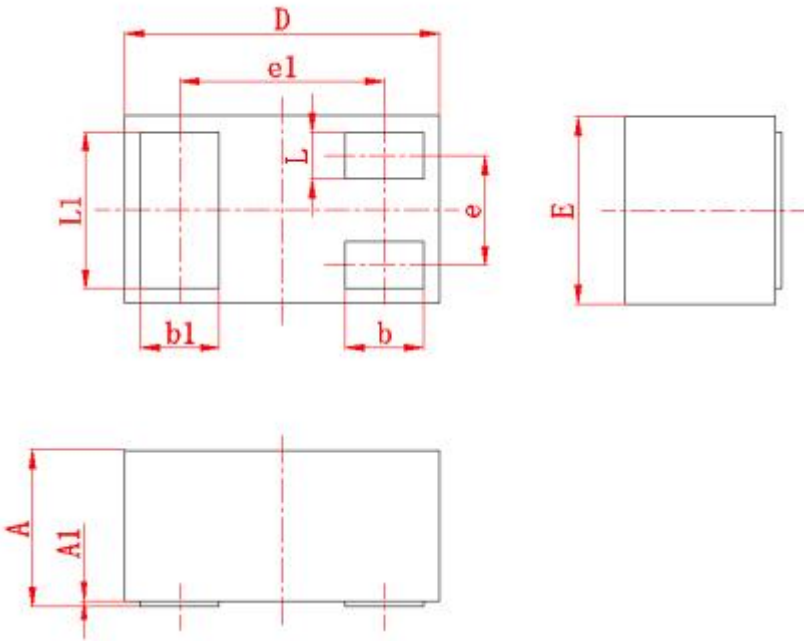
Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

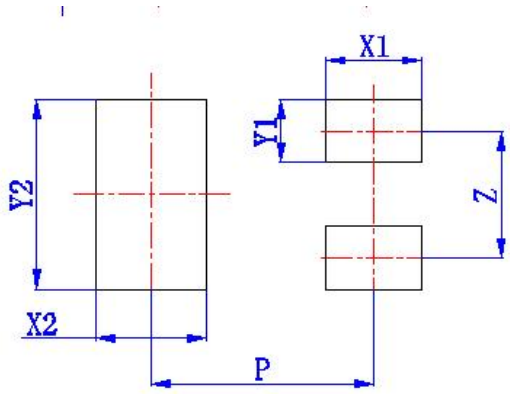


Package mechanical data



Symbol	Millimeters	
	min	max
A	0.4	0.5
A1	0	0.05
D	0.9	1.1
E	0.55	0.65
e	(0.35)	
e1	(0.65)	
b	0.2	0.3
b1	0.2	0.3
L	0.1	0.2
L1	0.45	0.55

Suggested Land Pattern



Symbol	Dimension in Millimeters
	typ
X1	(0.3)
X2	(0.35)
Y1	(0.2)
Y2	(0.6)
Z	(0.4)
P	(0.7)

REEL SPECIFICATION

P/N	PKG	QTY
NX3008NBKMB-MS	DFN-3(1x0.6)	10000

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