描述 / Descriptions

DFN3×3A-8L 塑封封装 N 沟道 MOS 场效应管。
N-Channel Enhancement Mode Field Effect Transistor in a DFN3×3A-8L Plastic Package.

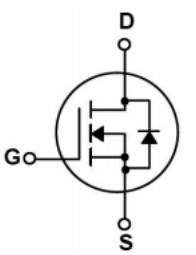
特征 / Features

V_{DS} (V) = 20V I_D = 43A (V_{GS} = ± 12V)
$R_{DS(ON)}$@10V≤10mΩ(Typ.8.0mΩ)
$R_{DS(ON)}$@4.5V≤11mΩ(Typ.9.5mΩ)
$R_{DS(ON)}$@2.5V≤16mΩ(Typ.14mΩ)
无卤产品。HF Product.

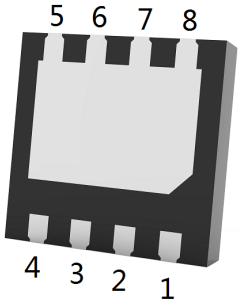
用途 / Applications

用于低压电路如：汽车电路、DC/DC 转换、便携式产品的电源高效转换。
Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



出脚	定义
Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

印章代码 / Marking

见印章说明。
See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	20	V
Drain Current		I_D(Tc=25℃)	43	A
Drain Current - Pulsed		I_{DM}	107	A
Gate-Source Voltage		V_{GS}	±12	V
Avalanche Current		I_{AS}	12.5	A
Single Pulsed Avalanche Energy		E_{AS}	111	mJ
Power Dissipation		P_D(Tc=25℃)	28	W
Junction Temperature Range		T_j	150	℃
Storage Temperature Range		T_{stg}	-55～150	℃
Maximum Junction-to-Ambient	t≤10s	RθJA	50	℃/W
	Steady-State		70	
Maximum Junction-to-Case	Steady-State	RθJC	4.5	℃/W

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions		最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V	I_D=250μA	20	25		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V	V_{GS}=0V			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±12V	V_{DS}=0V			±0.1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=10.0A		8	10	mΩ
		V_{GS}=4.5V	I_D=10.0A		9.5	11	mΩ
		V_{GS}=2.5V	I_D=10.0A		14	16	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	0.5	0.8	1.1	V
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_F=1.0A		0.75	1.2	V
Signal Source Resistance	Rg	F=1MHz			2.7		Ω
Input Capacitance	C_{iss}	V_{DS}=15V f=1.0MHz	V_{GS}=0V		1100		pF
Output Capacitance	C_{oss}				160		
Reverse Transfer Capacitance	C_{rss}				130		

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=10V V_{GS}=10V R_L=1.0Ω R_{GEN}=3.0Ω		2.5		ns
Turn-On Rise Time	t_r			7.2		
Turn-Off Delay Time	$t_{d(off)}$			49		
Turn-Off Fall Time	t_f			10.8		
Total Gate Charge	$Q_{g(4.5V)}$	V_{DS}=10V V_{GS}=4.5V I_D=12.0A		17.9		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			4.7		

电参数曲线图 / Electrical Characteristic Curve

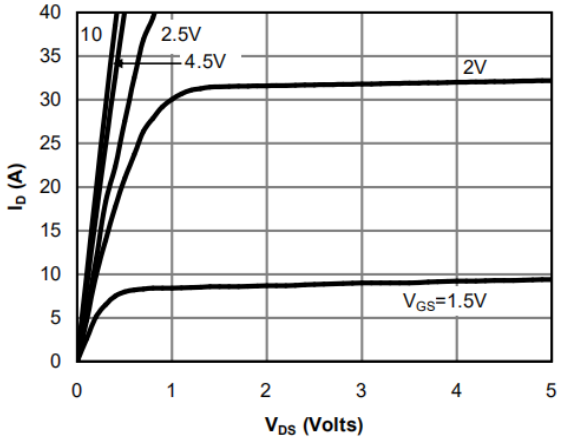


Fig 1: On-Region Characteristics

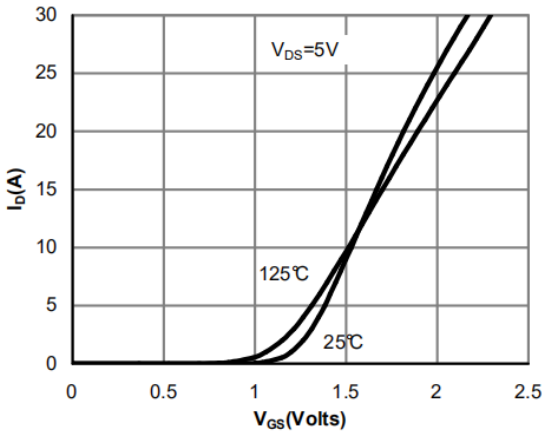


Figure 2: Transfer Characteristics

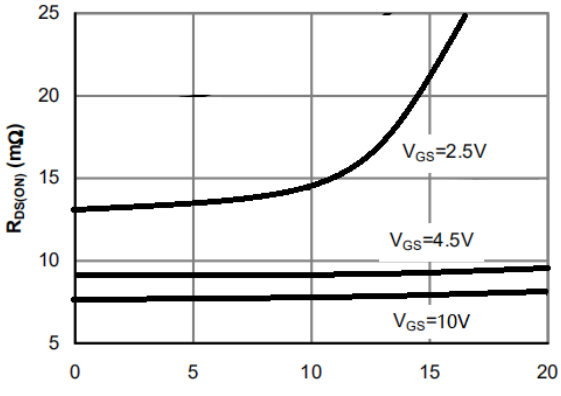


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

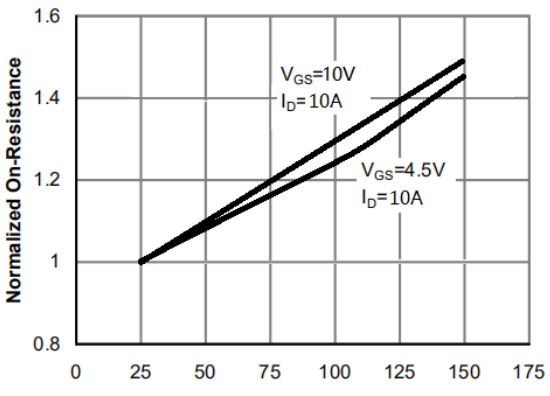


Figure 4: On-Resistance vs. Junction Temperature

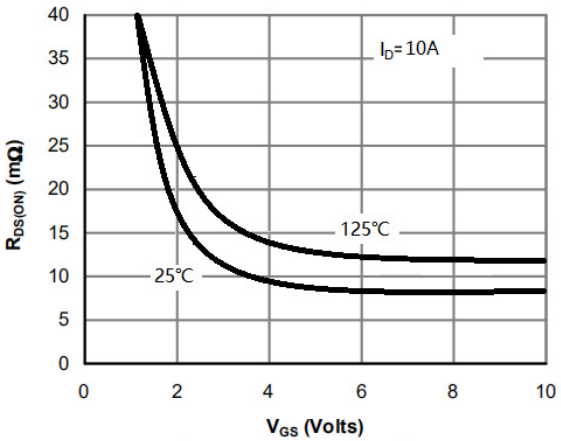


Figure 5: On-Resistance vs. Gate-Source Voltage

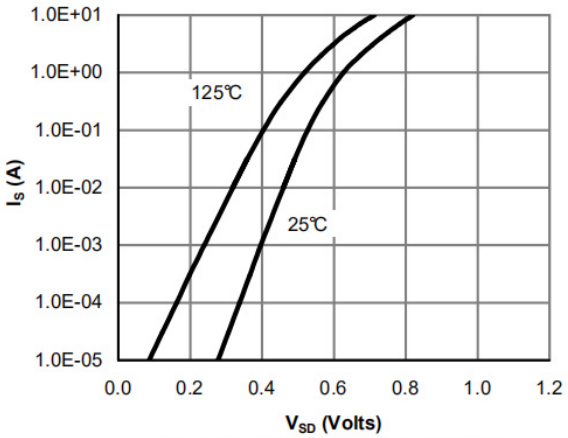


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

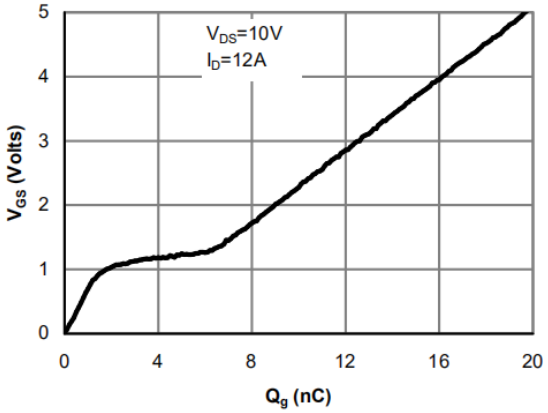


Figure 7: Gate-Charge Characteristics

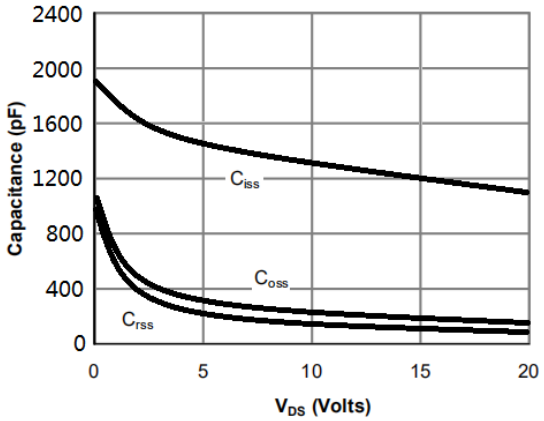


Figure 8: Capacitance Characteristics

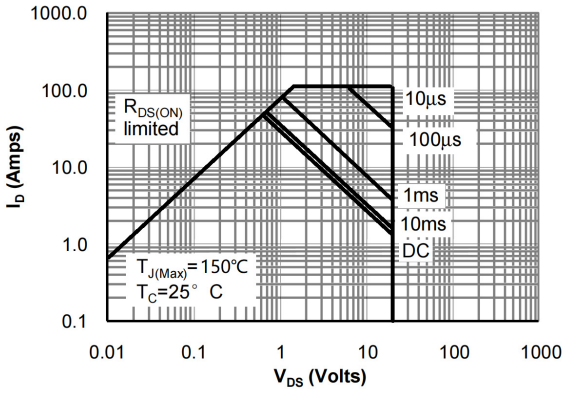


Figure 9: Maximum Forward Biased Safe Operating Area

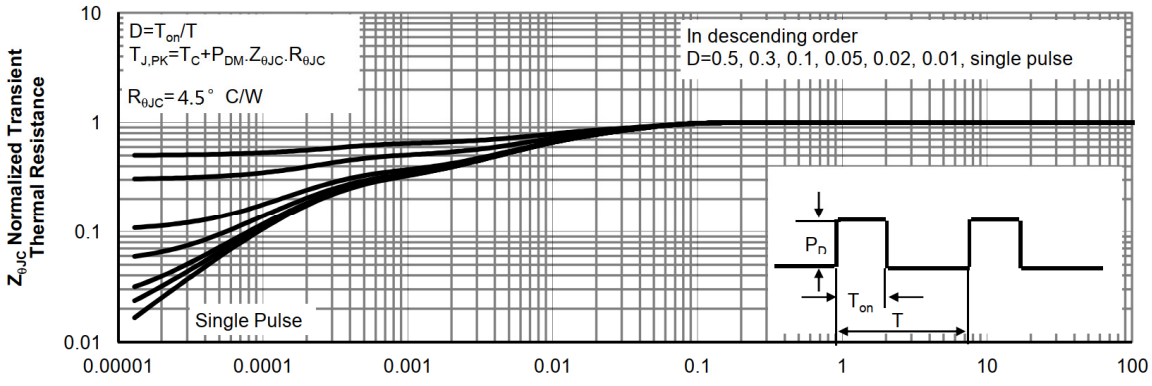
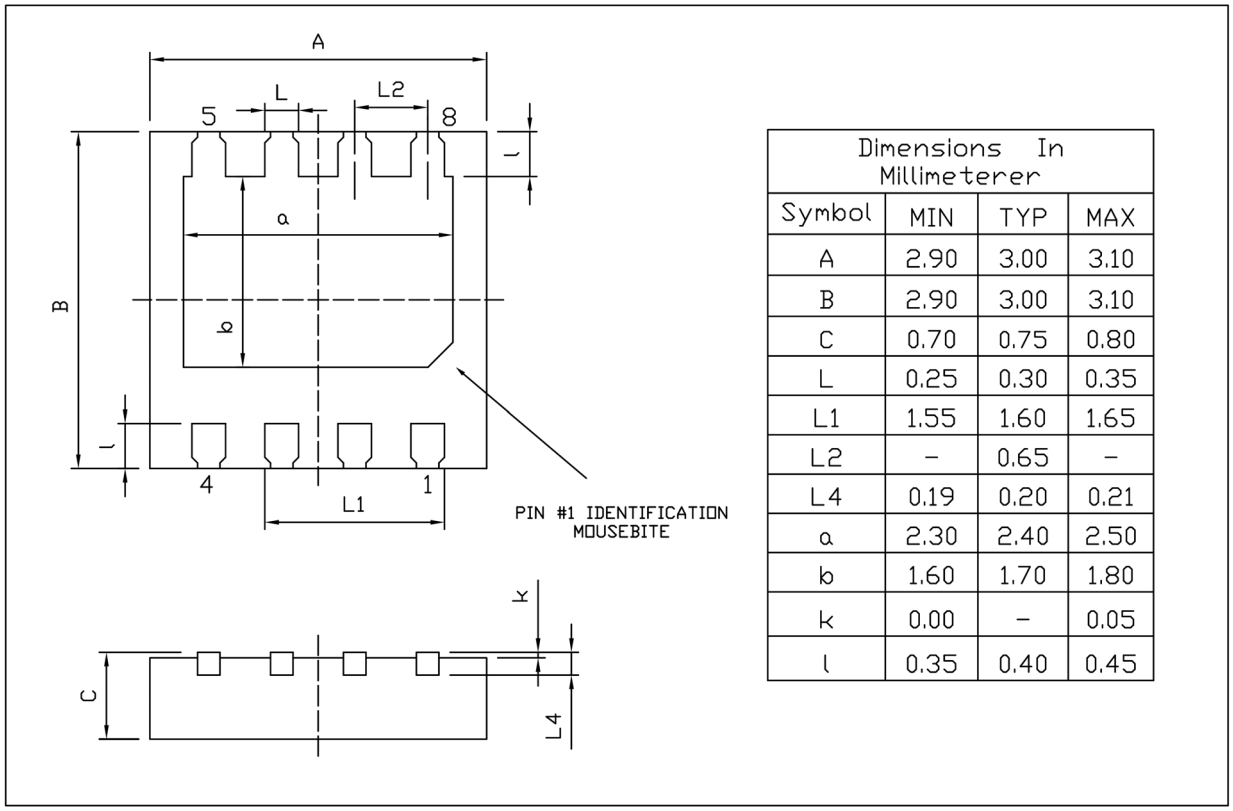


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

DFN3X3A-8L Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	2.90	3.00	3.10
B	2.90	3.00	3.10
C	0.70	0.75	0.80
L	0.25	0.30	0.35
L1	1.55	1.60	1.65
L2	-	0.65	-
L4	0.19	0.20	0.21
a	2.30	2.40	2.50
b	1.60	1.70	1.80
k	0.00	-	0.05
l	0.35	0.40	0.45

Rev.00 202004

印章说明 / Marking Instructions

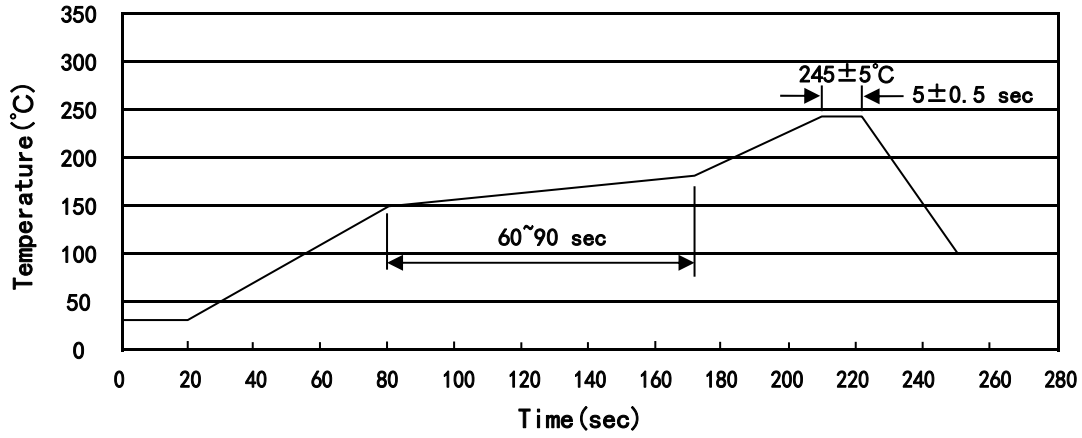
说明：

BR：	为公司代码
080N02：	为型号代码
****：	为生产批号代码，随生产批号变化

Note:

BR:	Company Code
080N02:	Product Type Code
****:	Lot No. Code, code change with Lot No

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

1、预热温度 150～180℃，时间 60～90sec;

2、峰值温度 245±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:150~180℃, Time:60~90sec.

2.Peak Temp.:245±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5℃ 时间：10±1 sec. Temp.:260±5℃ Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
DFN3×3A-8L	5,000	2	10,000	6	60,000	13″ ×12	360×360×50	380×335×366

使用说明 / Notices