

/ Revised record

A	2022.07.07	ALL	AOS-AOD240		

/ Descriptions

TO-252 N

N-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

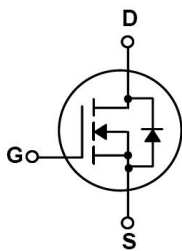
 $R_{DS(on)}$ C_{rss} Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching, HF Product.

/ Applications

DC/DC

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V _{DSS}	40	V
Drain Current		I _D (Tc=25℃)	164	A
Drain Current - Pulsed		I _{DM}	328	A
Gate-Source Voltage		V _{GS}	± 20	V
Avalanche Current		I _{AS}	33.2	A
Single Pulsed Avalanche Energy(L=0.5mH)		E _{AS}	880	mJ
Power Dissipation		P _D (Tc=25℃)	125	W
Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150	℃
Thermal Resistance-Junction to Ambient	t≤10s	R _{θJA}	17	℃/W
	Steady-State		47	
Thermal Resistance-Junction to Case	Steady-State	R _{θJC}	1	

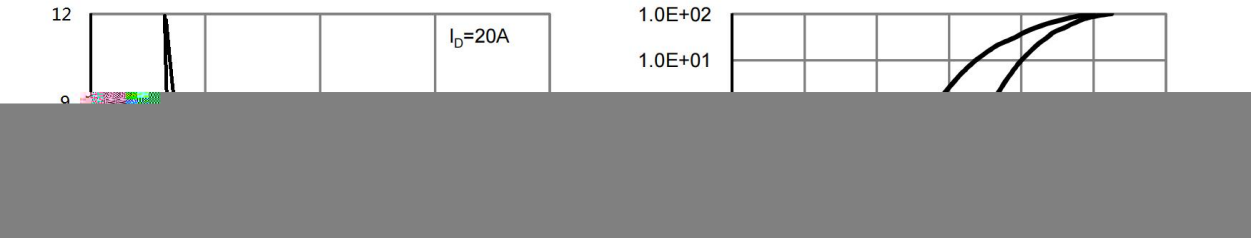
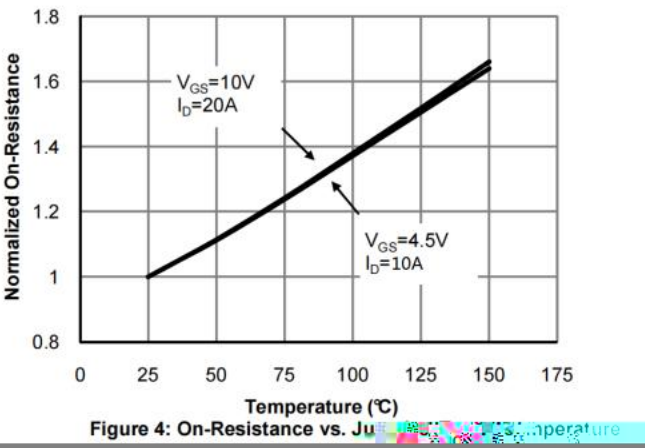
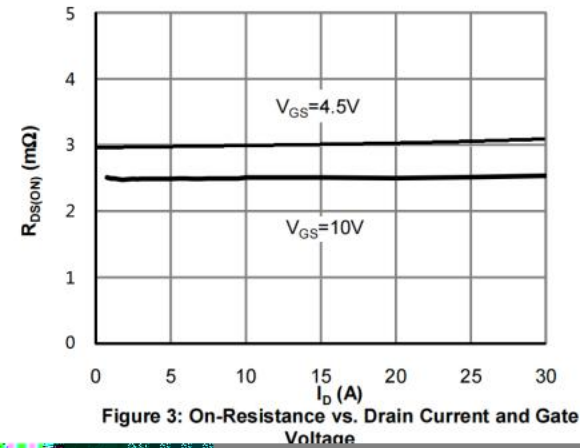
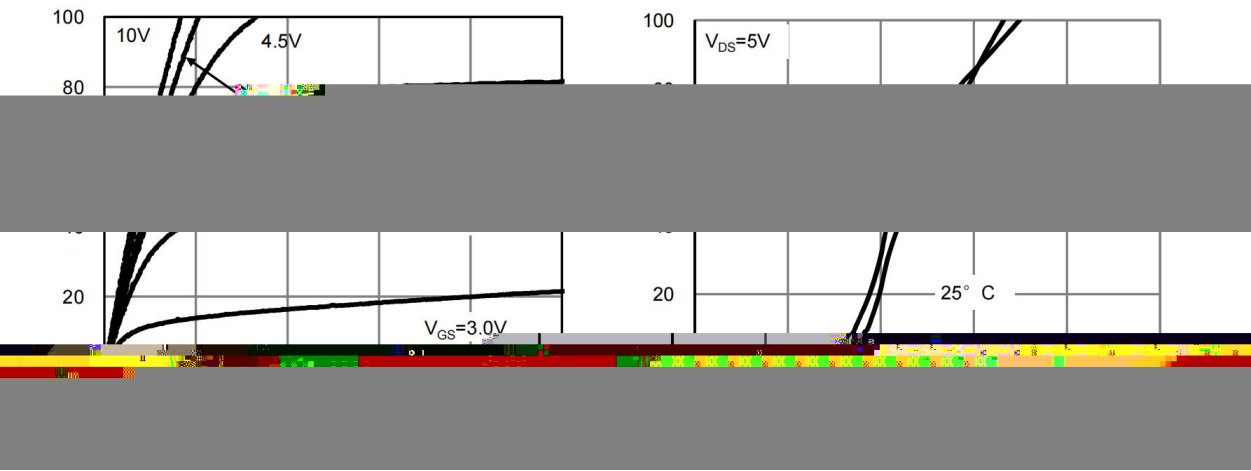
/ Electrical Characteristics(Ta=25)

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}	$V_{GS}=0V \quad I_D=250\mu A$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V \quad V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V \quad V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS} \quad I_D=250\mu A$	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V \quad I_D=20A$		2.5	2.8	m Ω
		$V_{GS}=4.5V \quad I_D=10A$		3.1	3.5	
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V \quad I_S=1A$			1.2	V
Gate resistance	R_g	$V_{GS}=0V \quad V_{DS}=0V, \quad f=1MHz$		2		Ω
Input Capacitance	C_{iss}	$V_{DS}=25V \quad V_{GS}=0V \quad f=1.0MHz$		10850		pF
Output Capacitance	C_{oss}			830		
Reverse Transfer Capacitance	C_{rss}			750		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V, \quad V_{DS}=20V, \quad I_D=20A$		50		nC
Total Gate Charge	$Q_{g(4.5V)}$			23		
Gate Source Charge	Q_{gs}			9		
Gate Drain Charge	Q_{gd}			6		

/ Electrical Characteristics(Ta=25)

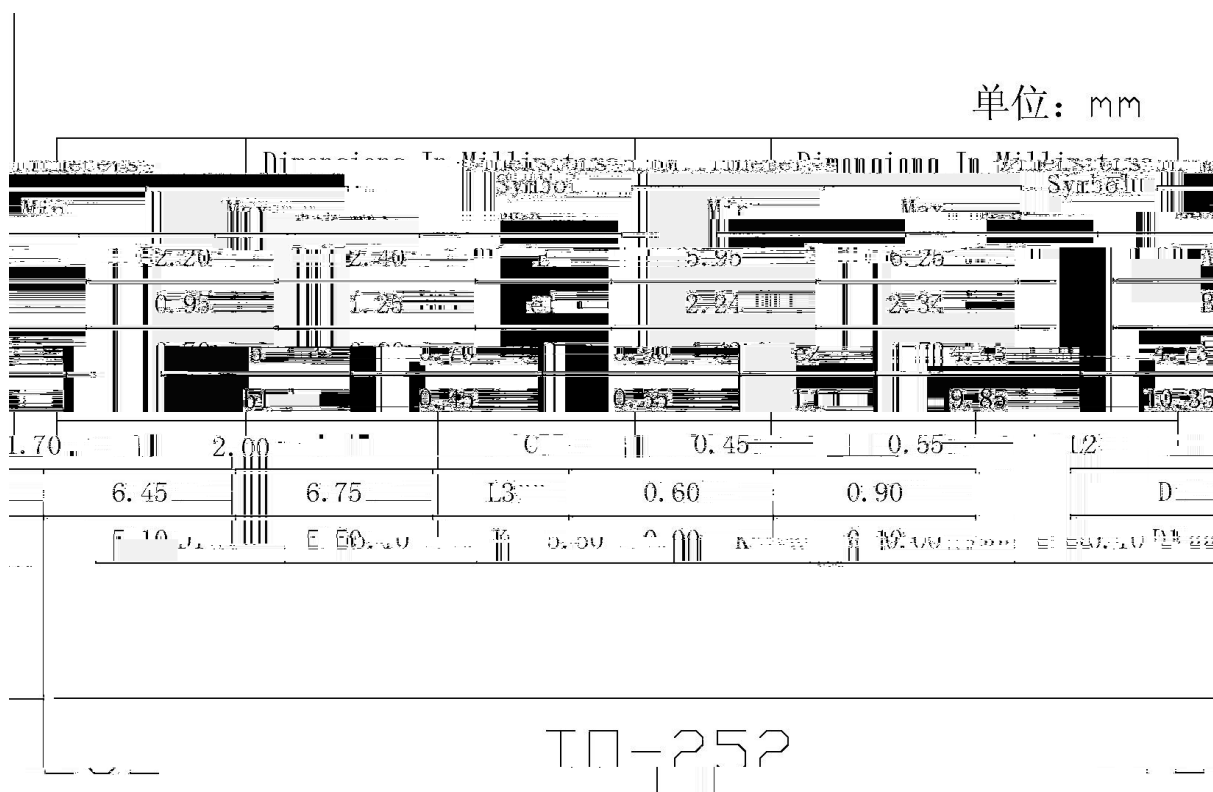
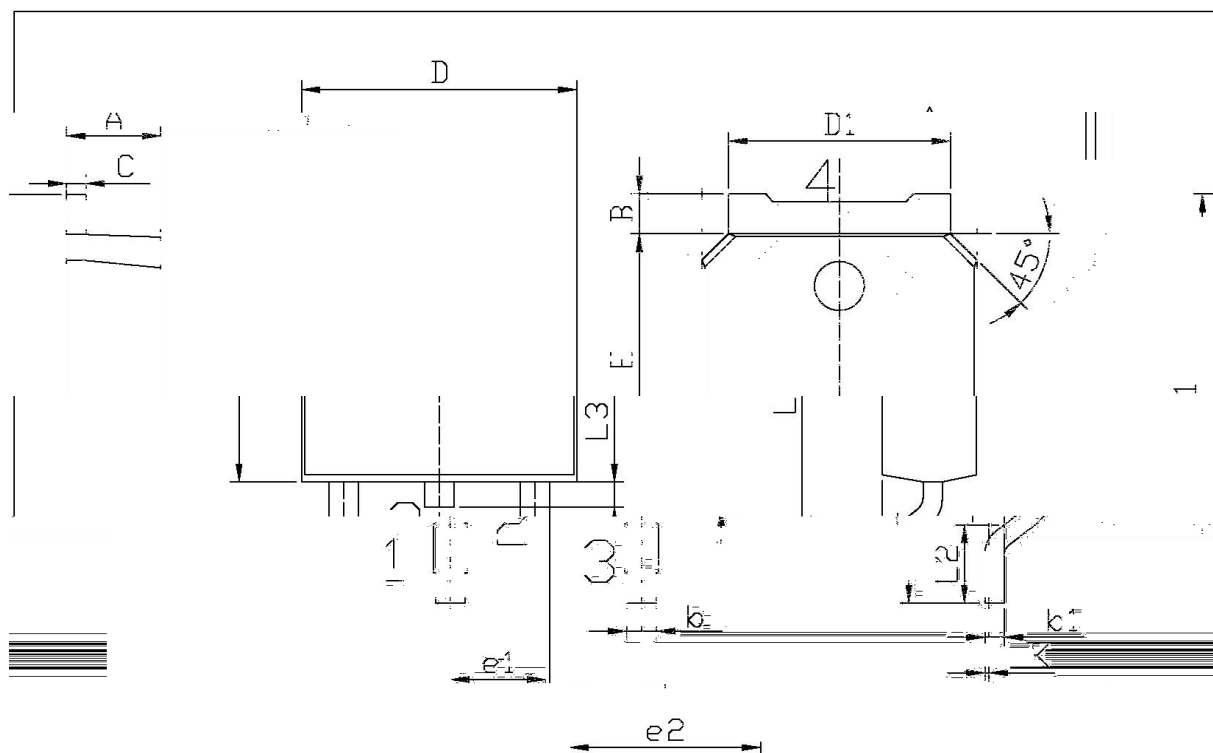
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=20V$ $R_L=1\ \Omega$ $R_{GEN}=3\ \Omega$		11		ns
Turn-On Rise Time	t_r			11		
Turn-Off Delay Time	$t_{d(off)}$			40		
Turn-Off Fall Time	t_f			10		

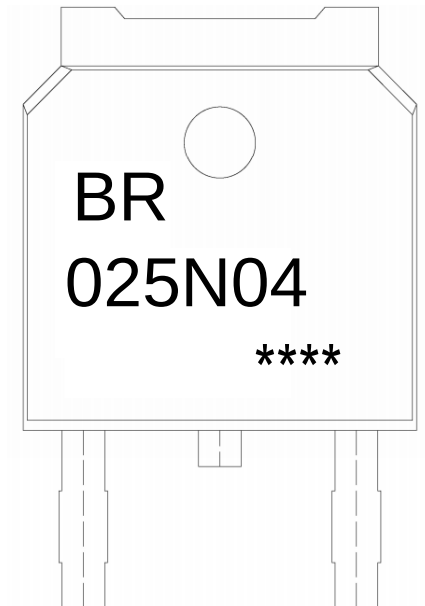
/ Electrical Characteristic Curve



/ E

/ Package Dimensions



/ Marking Instructions

说明：

BR： 为公司代码

025N04： 为型号代码

****： 为生产批号代码，随生产批号变化

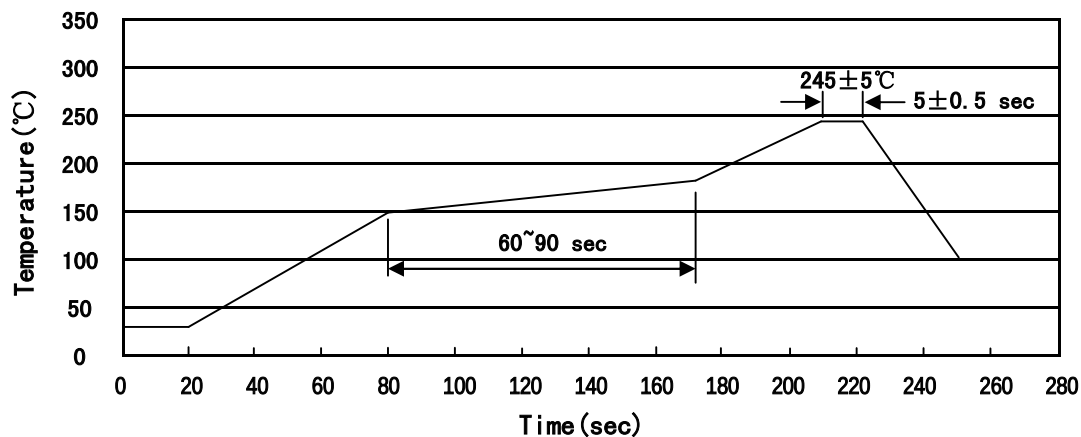
Note:

BR: Company Code

025N04: Product Type Code

****: Lot No. Code, code change with Lot No

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|-----------|--------|--|
| 1 | 150 | 180 | 60 | 90sec; | 1.Preheating:150~180°C, Time:60~90sec. |
| 2 | 245±5 | | 5±0.5sec; | | 2.Peak Temp.:245±5°C, Duration:5±0.5sec. |
| 3 | | 2 | 10°C/sec. | | 3. Cooling Speed: 2~10°C/sec. |

/ Resistance to Soldering Heat Test Conditions

260±5°C 10±1 sec. Temp.:260±5°C Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	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	Outer Box
TO-252	2,500	2	5,000	6	30,000	13" ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices