/ 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}

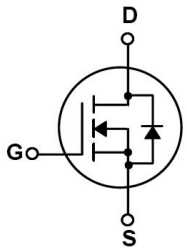
Low $R_{DS(on)}$,low gate charge, low C_{rss}, fast switching, HF Product.

/ Applications

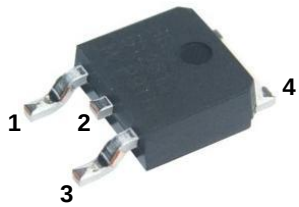
DC/DC

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	$R_{\theta JA}$	17	℃/W
	Steady-State		47	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	1	

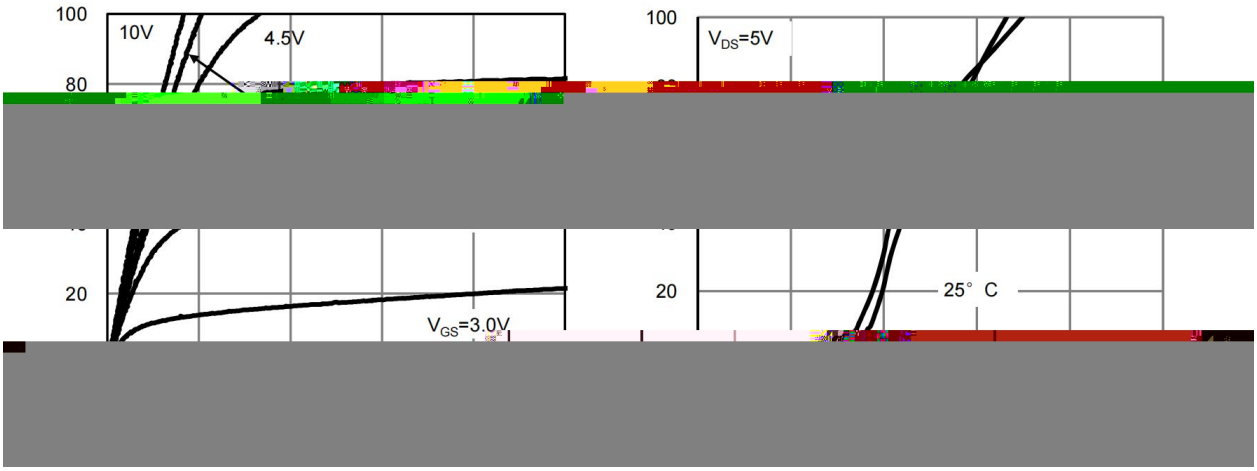
/ Electrical Characteristics(Ta=25)

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 I_D=250μA	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V V_{GS}=0V			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		2.5	2.8	mΩ
		V_{GS}=4.5V I_D=10A		3.1	3.5	
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V, f=1MHz		2		Ω
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V 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, V_{DS}=20V, 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=1Ω R_{GEN}=3Ω		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



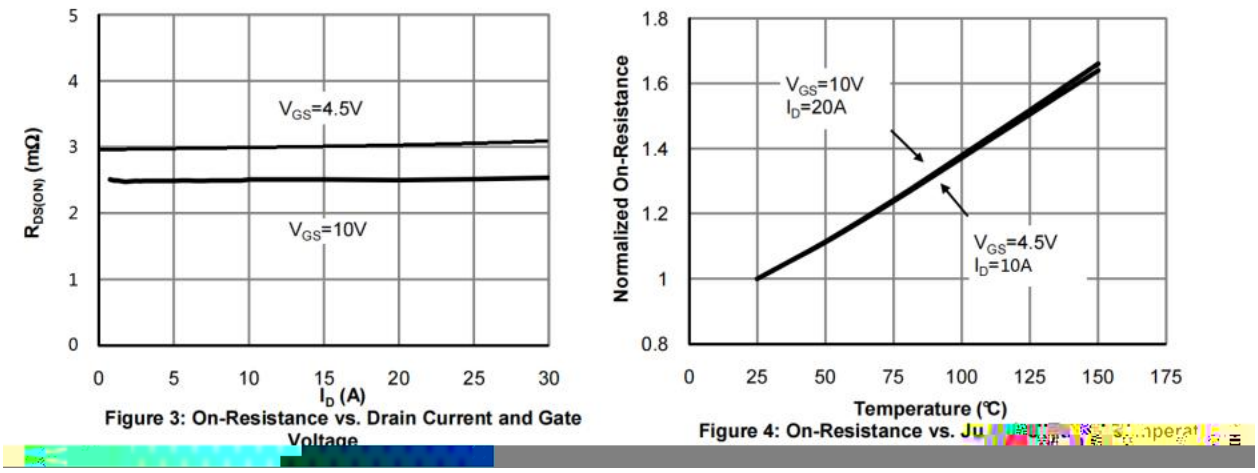
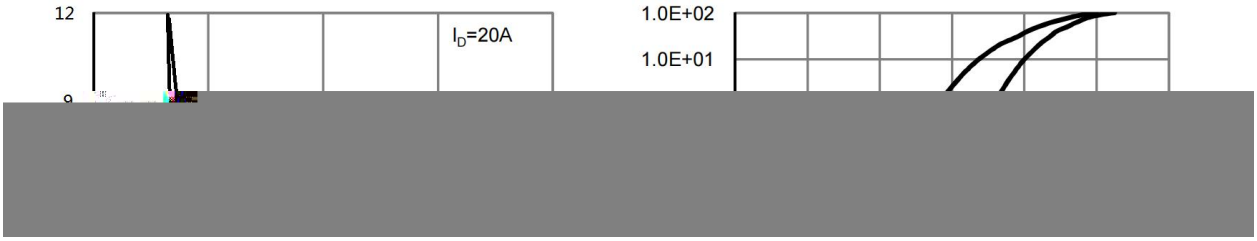


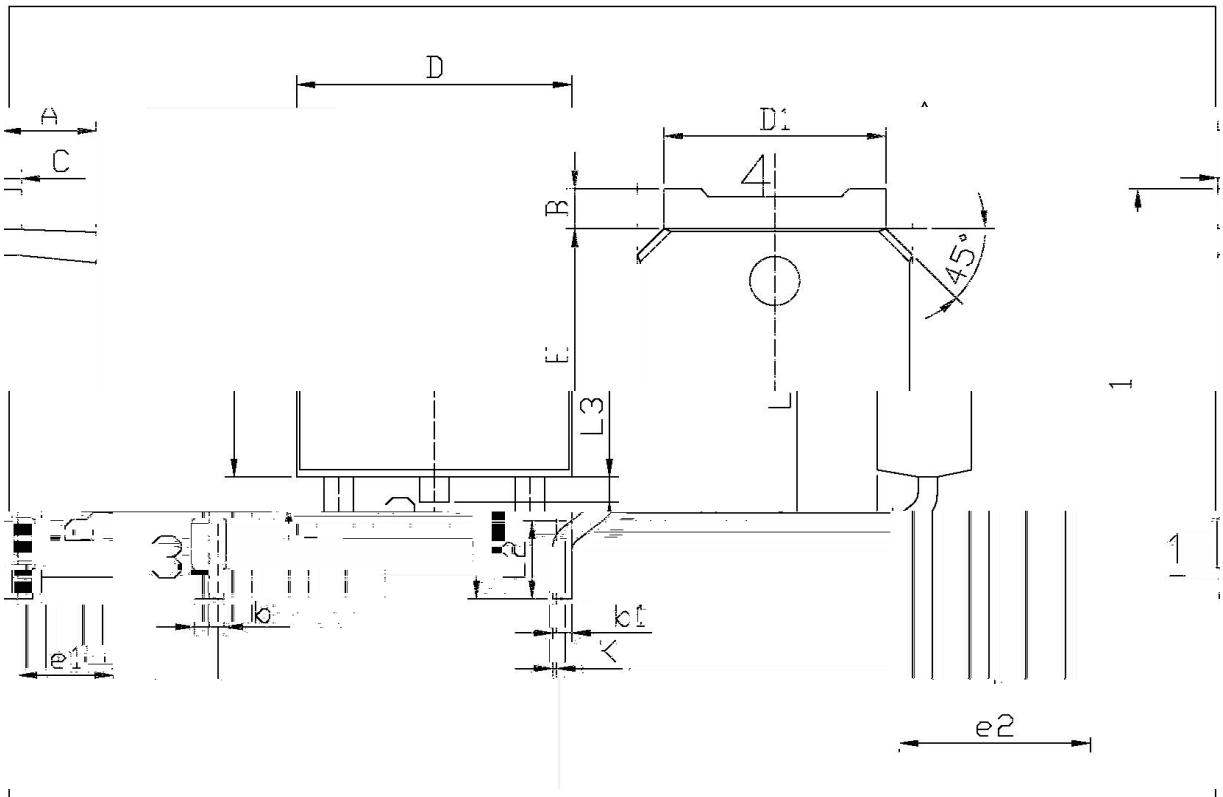
Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Ju... ...nperat...



/ E

/ Package Dimensions

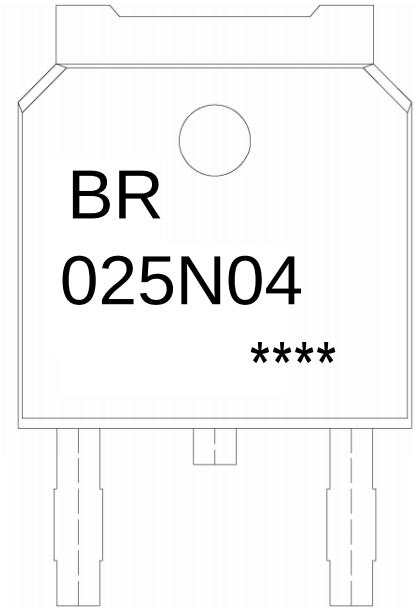


单位：mm

Symbol	Min	Max	Symbol	Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
C	4.45	4.75	b	0.70	0.90
D	9.85	10.35	E1	0.45	0.55
L2	1.70	2.00	c	0.45	0.55
D1	6.45	6.75	L3	0.60	0.90
θ	0°	10°	θ1	0°	10°
k	0.30	0.70	k1	0.30	0.70

TO-252

/ Marking Instructions



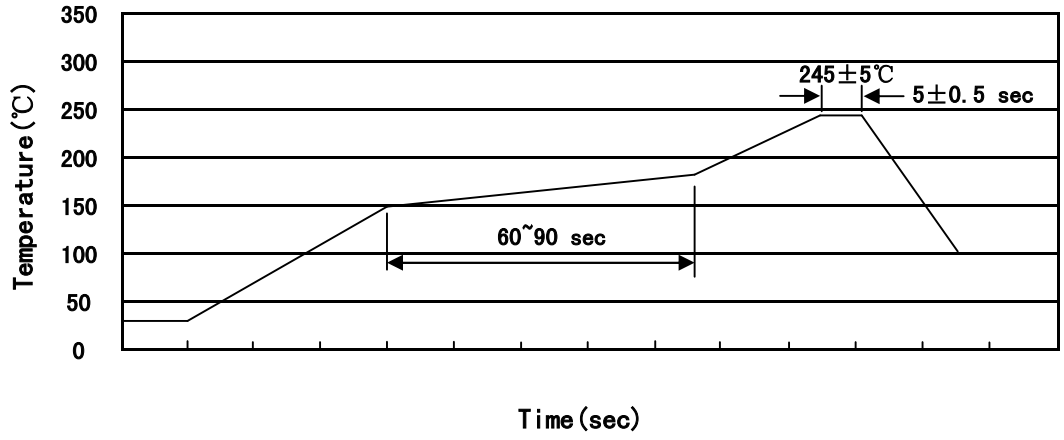
说明：

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

( ) /



Note:

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

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension		(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	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 mm³)
	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