

Rev.A May.-2023

TO-252 N

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

$V_{DS} (V) = 20V$ $I_D = 95A$ ($V_{GS} = \pm 20V$)

$R_{DS(ON)}@4.5V \leq 4m\Omega$ (Typ.3.7m Ω)

$R_{DS(ON)}@2.5V \leq 6m\Omega$ (Typ.5.5m Ω)

$R_{DS(ON)}@2.0V \leq 15m\Omega$ (Typ.8m Ω)

HF Product.

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	95	A
Drain Current - Pulsed		I_{DM}	212	A
Gate-Source Voltage		V_{GS}	± 12	V
Avalanche Current		I_{AS}	24	A
Single Pulsed Avalanche Energy		E_{AS}	201	mJ
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	55	W
Storage Temperature Range		T_{stg}	-55 ~ 150	
Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	20	/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	2.27	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	20	24		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V$ $V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	0.4	0.7	1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V$ $I_D=15A$		3.7	4	m Ω
		$V_{GS}=2.5V$ $I_D=10A$		5.5	6	
		$V_{GS}=2.0V$ $I_D=6.0A$		8	15	
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$			1.25	V
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$, $f=1\text{MHz}$		2.2		Ω
Input Capacitance	C_{iss}	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		2700		pF
Output Capacitance	C_{oss}			370		
Reverse Transfer Capacitance	C_{rss}			360		
Total Gate Charge	$Q_g(4.5V)$	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=20A$		31		nC
Gate Source Charge	Q_{gs}			5.2		
Gate Drain Charge	Q_{gd}			8		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=10V$ $R_L=0.5\Omega$ $R_{GEN}=3\Omega$		7.5		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			72		
Turn-Off Fall Time	t_f					

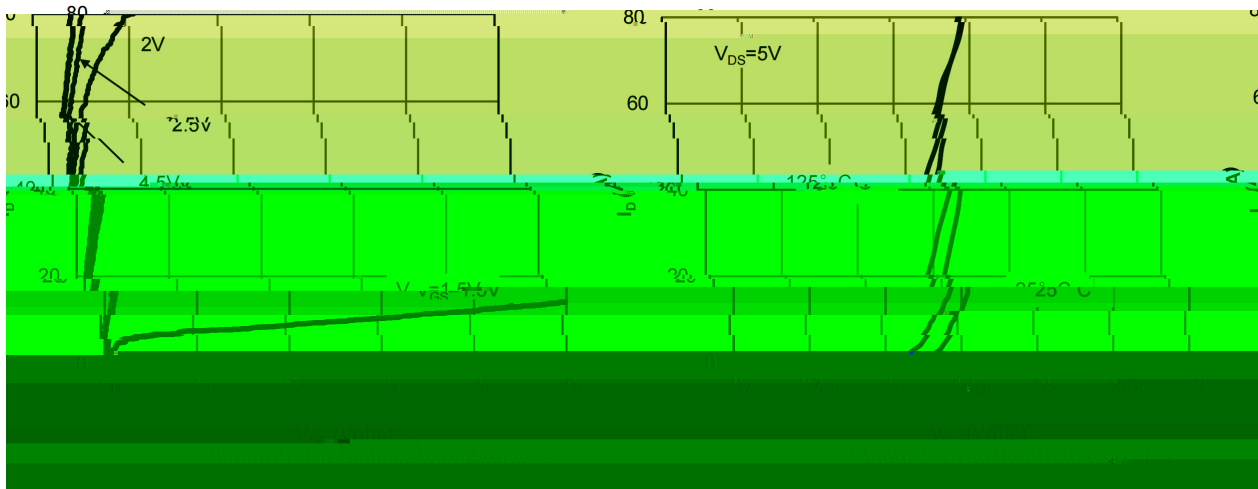
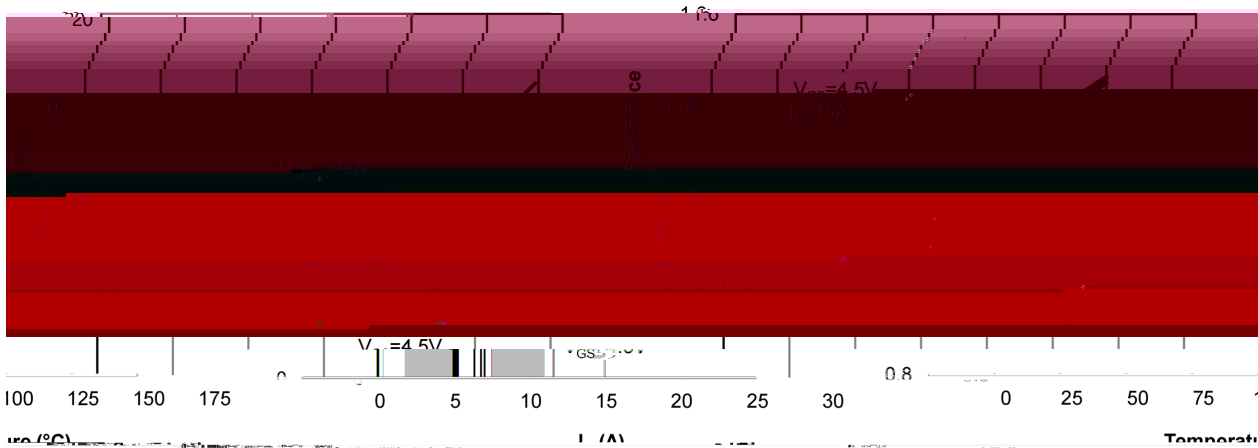


Figure 4: On-Resistance vs. Junction-Temperature

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

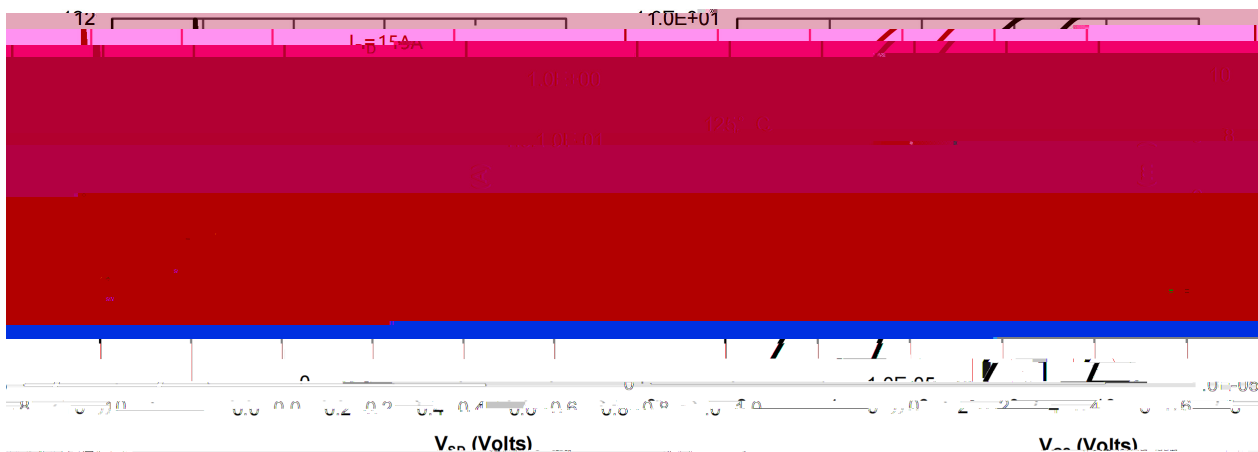
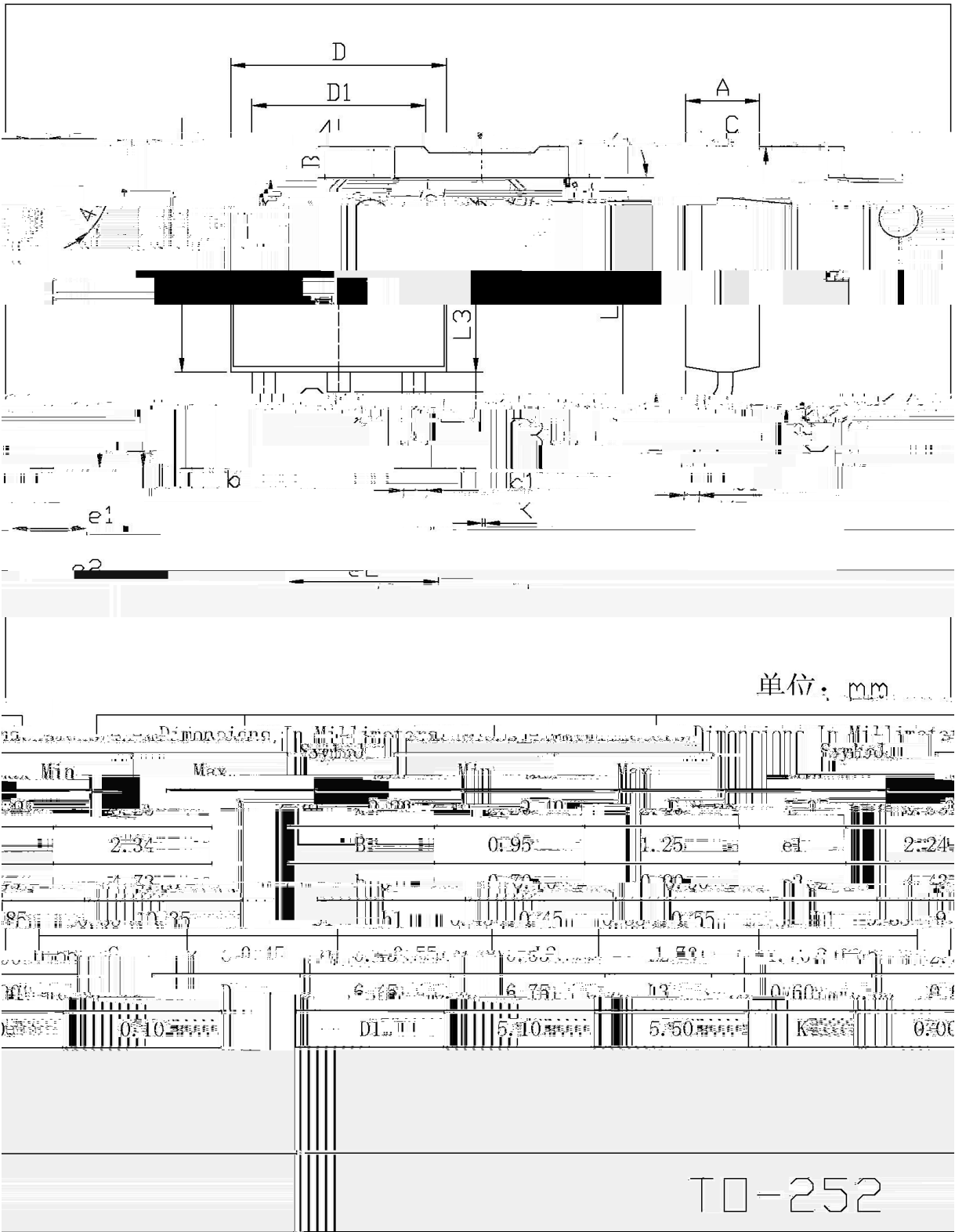
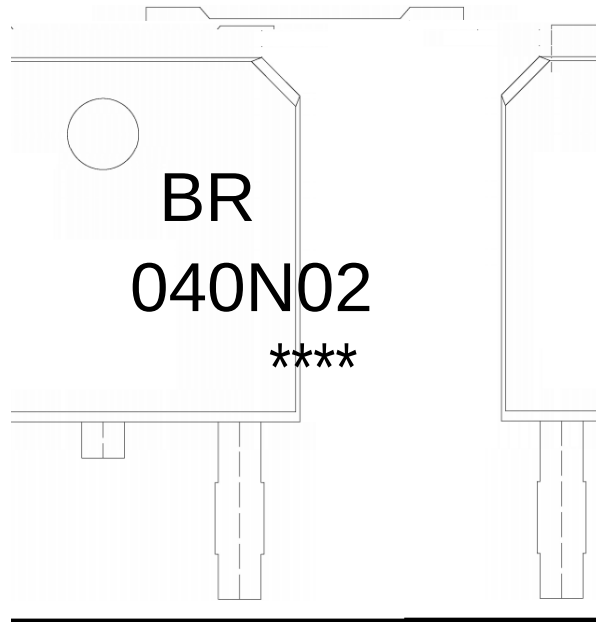


Figure 5: Body Diode Characteristics





BR

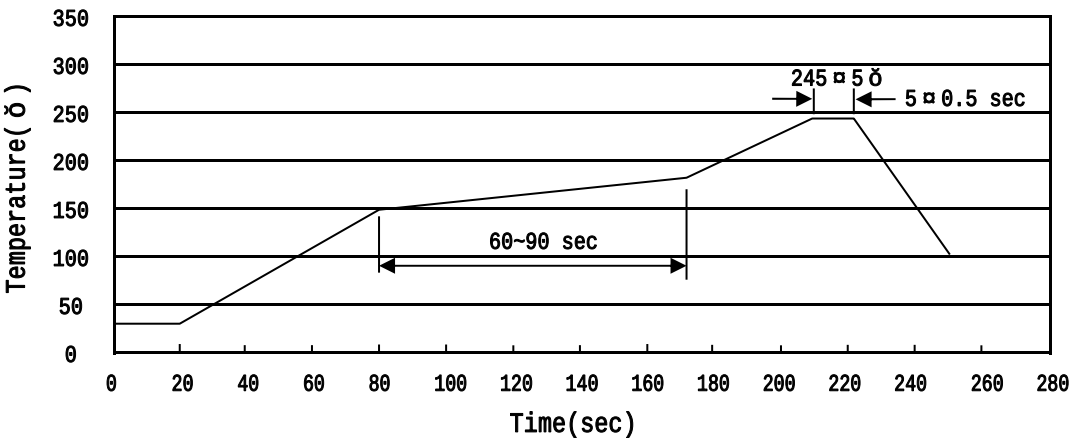
Note:

BR: Company Code

040N02: 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 , 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.

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

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	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	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	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