

Rev.A Dec.-2023

TO-252 N MOS

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

$V_{DS}=60V$; $I_D=20A$

$R_{DS(on)}@10V \leq 37m\Omega$ (Type.25m Ω)

$R_{DS(on)}@4.5V \leq 42m\Omega$ (Type.30m Ω)

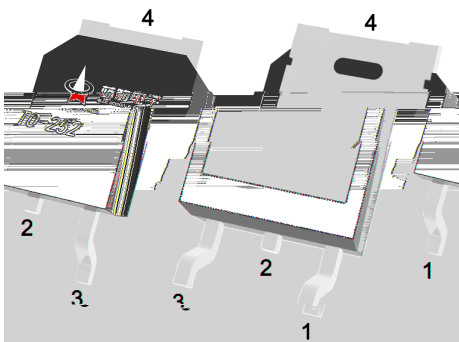
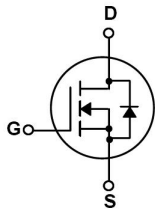
AEC-Q101

Qualified to AEC-Q101 Standards for High Reliability,

HF Product.

LED

Boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting, Meet the stringent requirements of automotive applications.



PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

See Marking Instructions.

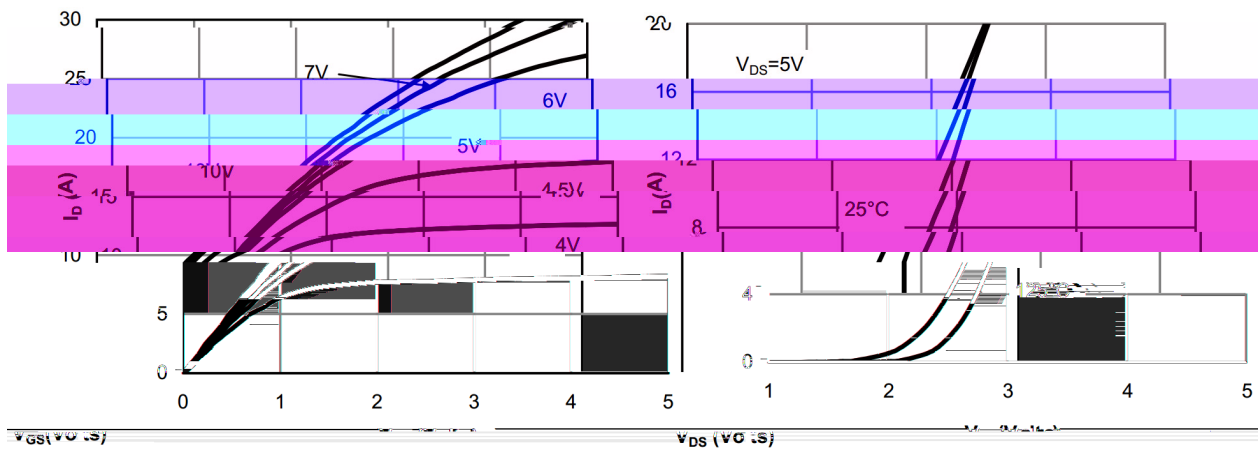
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	20	A
Drain Current - Pulsed	I_{DM}	47	A
Gate-Source Voltage	V_{GS}	± 20	V
Avalanche energy($L=0.5\text{mH}$)	E_{AS}	58	mJ
Avalanche Current($L=0.5\text{mH}$)	I_{AS}	13	A
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	33.6	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	65	/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.7	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=V_{GS}$				μA





Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=30V$ $R_L=2.5\Omega$ $R_{GEN}=3.0\Omega$		4.2		ns
Turn-On Rise Time	t_r			3.4		
Turn-Off Delay Time	$t_{d(off)}$			16		
Turn-Off Fall Time	t_f			2		



Transfer Characteristics

Fig. 1: On-Region Characteristics

Figure 2: Transfer Characteristics

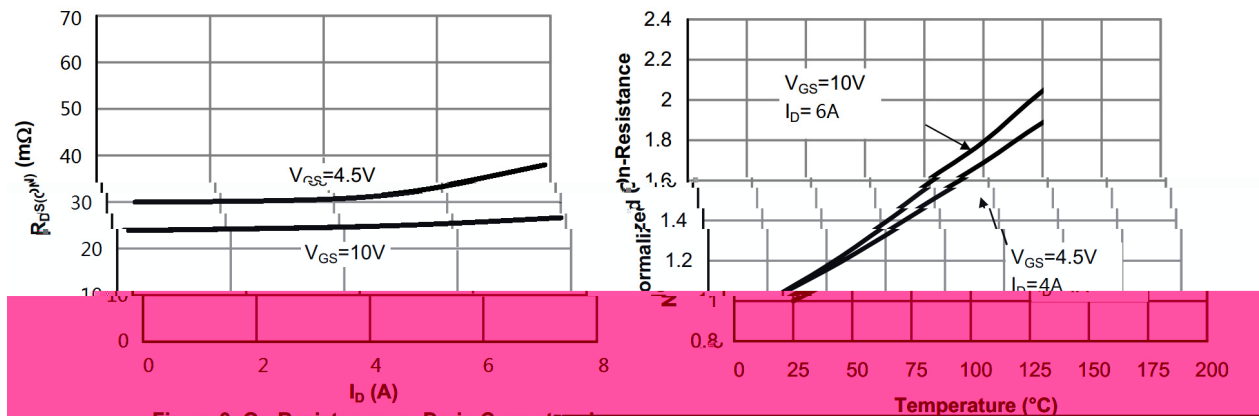


Figure 3: On-Resistance vs. Drain Current at Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature

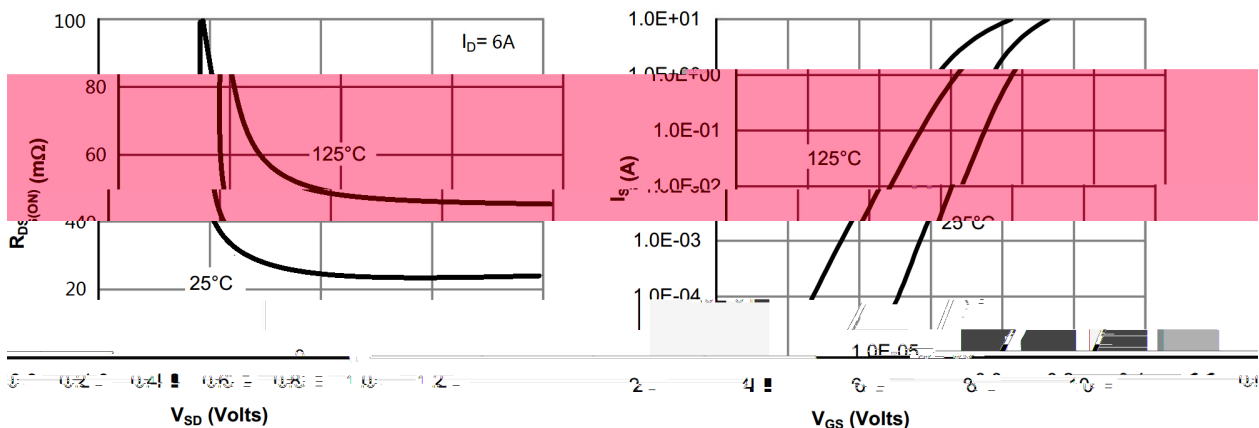
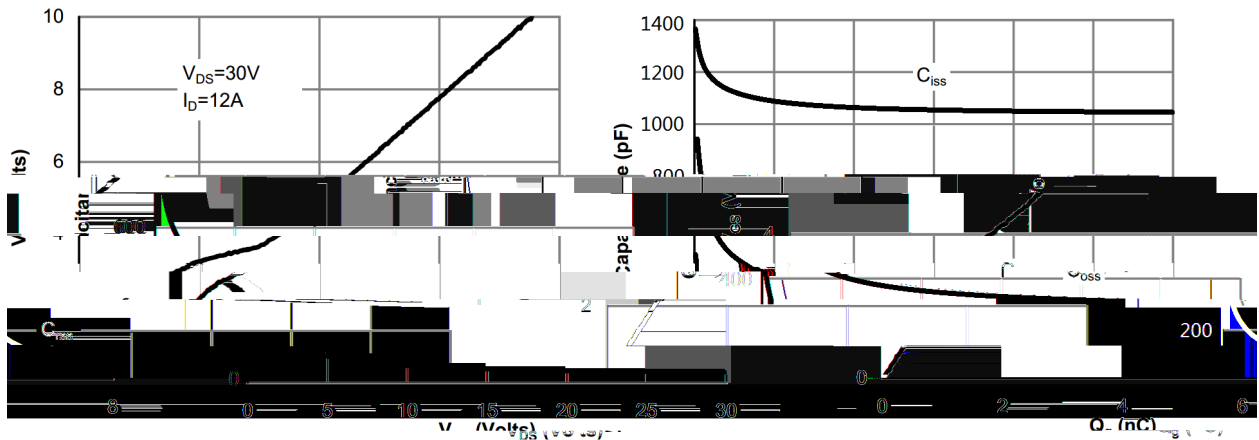


Figure 6: Body-Diode Characteristics

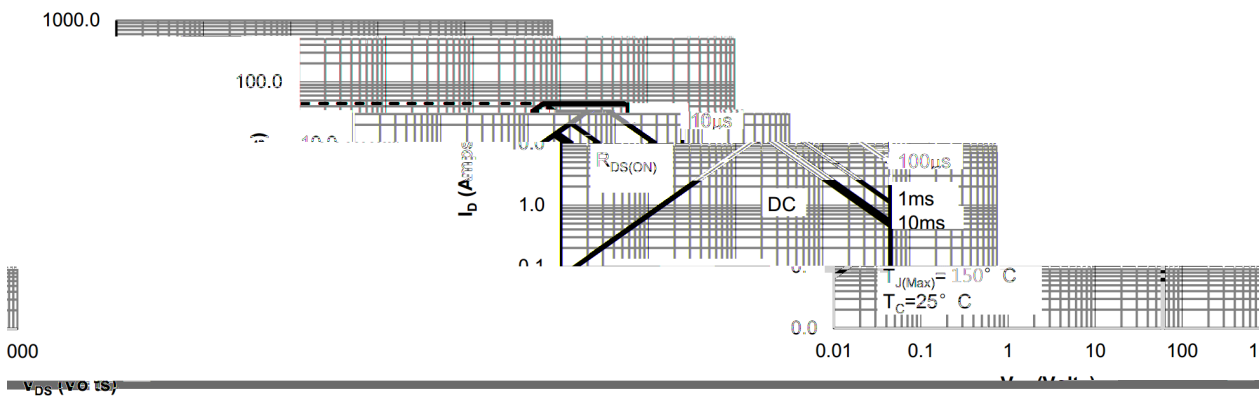
Figure 5: On-Resistance vs. Gate-Source Voltage



Characteristics

Figure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics



Maximum Forward Biased Safe Operating Area

Figure 9: Maximum Forward Biased Safe Operating Area

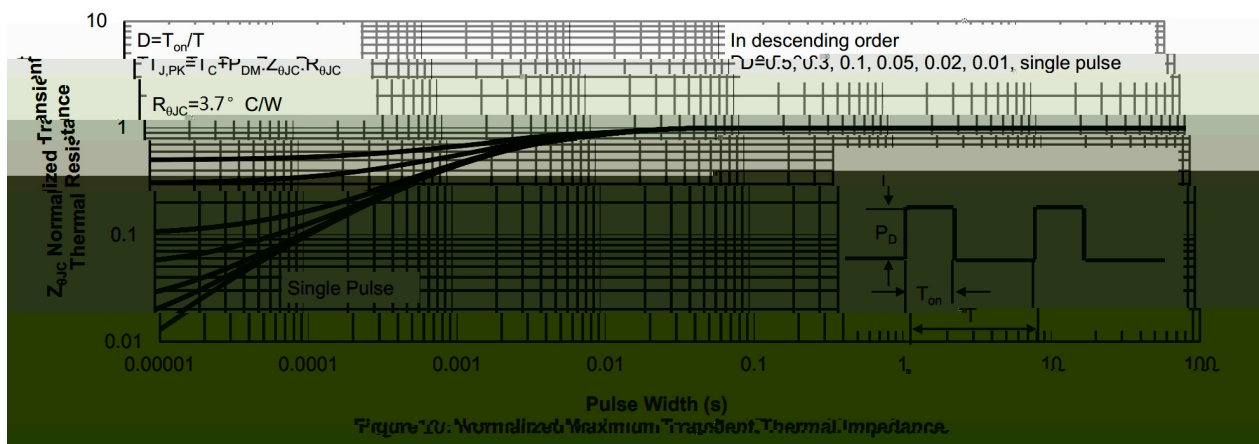
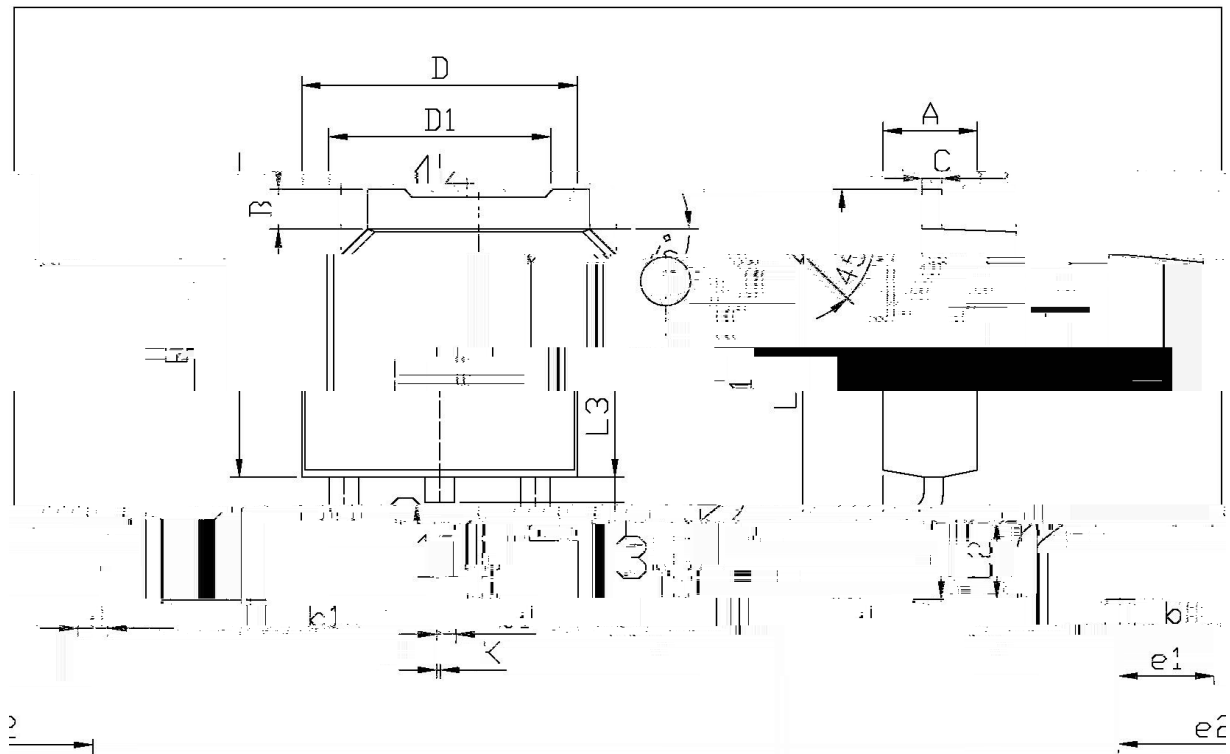


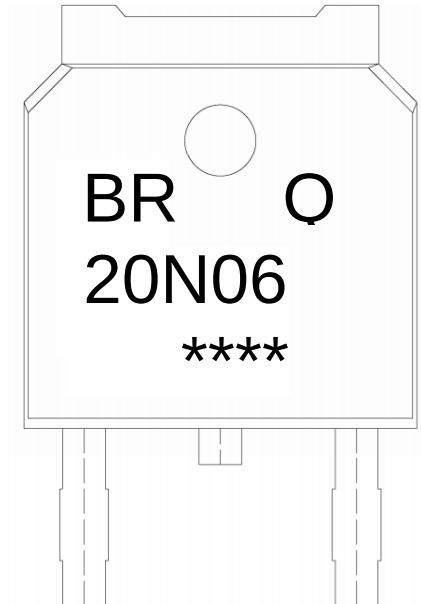
Figure 10: Normalized Maximum Transient Thermal Impedance



单位: mm

Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeters	
		Min	Max			Min	Max
	5.95	6.25			2.20	2.40	
	2.24	2.34			0.95	1.25	e1
	4.25	4.72			0.70	0.85	e2
	9.85	10.35			0.45	0.55	L3
	0.55	0.55			1.20	2.00	
	6.75	13.00	0.60		0.90		D
	5.10	5.50	K		0.00	0.10	D

T□-252



BR

Q

20N06

Note:

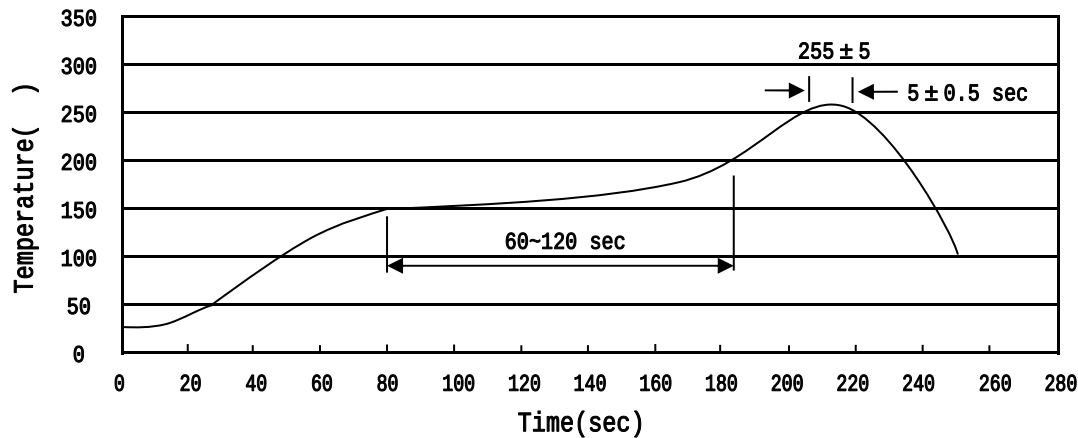
BR: Company Code

Q: Automobile halogen-free product Code

20N06: Product Type Code

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

Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|----|-----------|---|
| 1 | 150 | 200 | 60 | 120sec; | 1.Preheating:150~200 , Time:60~120sec. |
| 2 | 255±5 | | | 5±0.5sec; | 2.Peak Temp.:255±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)		
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)		
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180