/ Descriptions

TO-263 N

N-CHANNEL MOSFET in a TO-263 Plastic Package.

/ Features

, AEC-Q101

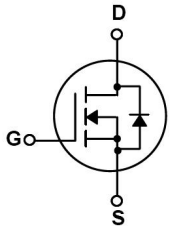
Ultra Low On-Resistance,fast switching, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

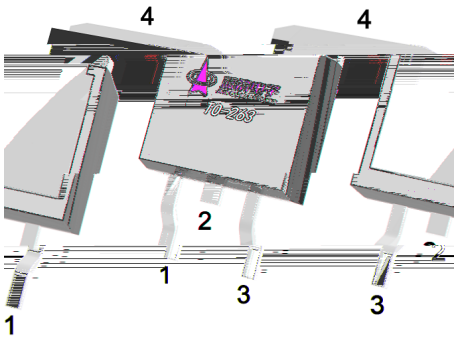
PFC

These devices are well suited for high efficient switched mode power supplies，Active power factor correction, electronic lamp ballast based on half bridge topology, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 4 D PIN 3 S

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		I_D(Tc=25℃)	120	A
Pulsed Drain Current		I_{DM}	480	A
Gate-Source Voltage		V_{GS}	±20	V
Single Pulsed Avalanche Energy L=0.5mH		E_{AS}	482	mJ
Avalanche Current		I_{AS}	35	A
Total Power Dissipation		P_D(Tc=25℃)	187	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 175	
Thermal Resistance-Junction to Ambient	t ≤ 10s	$R_{\theta JA}$	15	/W
	Steady-State		60	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.7	

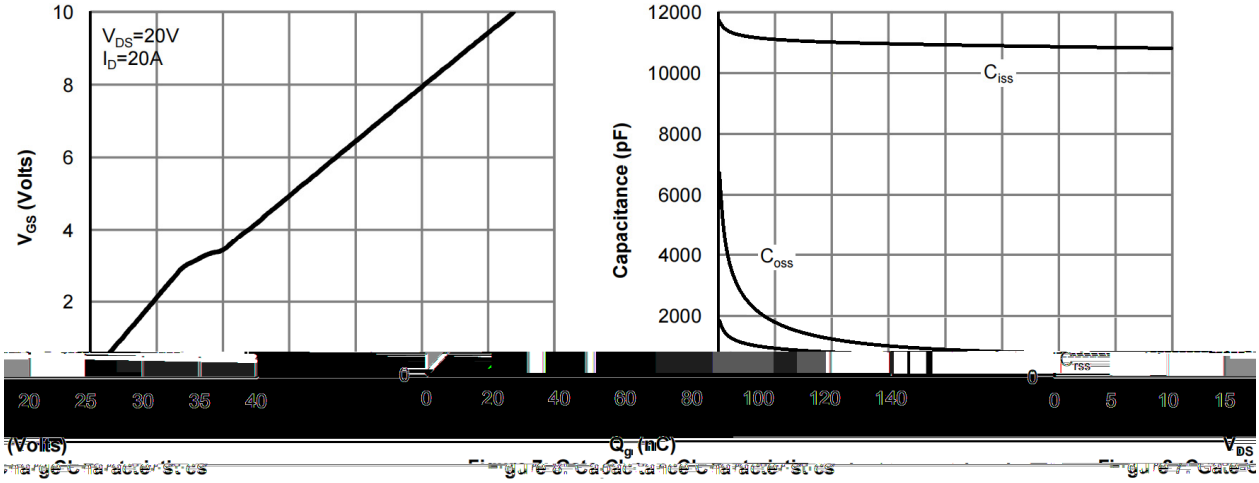
/ Electrical Characteristics(Ta=25)

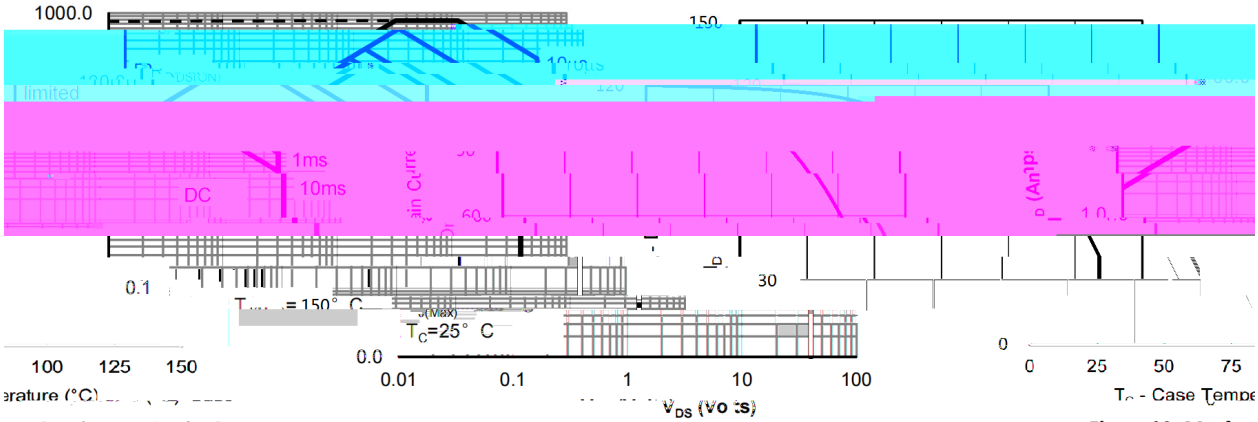
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	40	44		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1	1.6	3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		1.6	2	mΩ
		V_{GS}=4.5V I_D=10A		2.1	4	
Forward On Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1MHz		11000		pF
Output Capacitance	C_{oss}			840		
Reverse Transfer Capacitance	C_{rss}			650		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate resistance	R_g	f=1MHz		1.45		Ω
Total Gate Charge	Q_g(10V)	V_{GS}=10V V_{DS}=20V I_D=20A		68		nC
Total Gate Charge	Q_g(4.5V)			28		
Gate Source Charge	Q_{gs}			16.5		
Gate Drain Charge	Q_{gd}			4.5		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=20V R_L=1Ω R_{GEN}=3Ω		12.5		ns
Turn-On Rise Time	t_r			9.5		
Turn-Off Delay Time	$t_{d(off)}$			57.5		
Turn-Off Fall Time	t_f			10.5		

/ Electrical Characteristic Curve

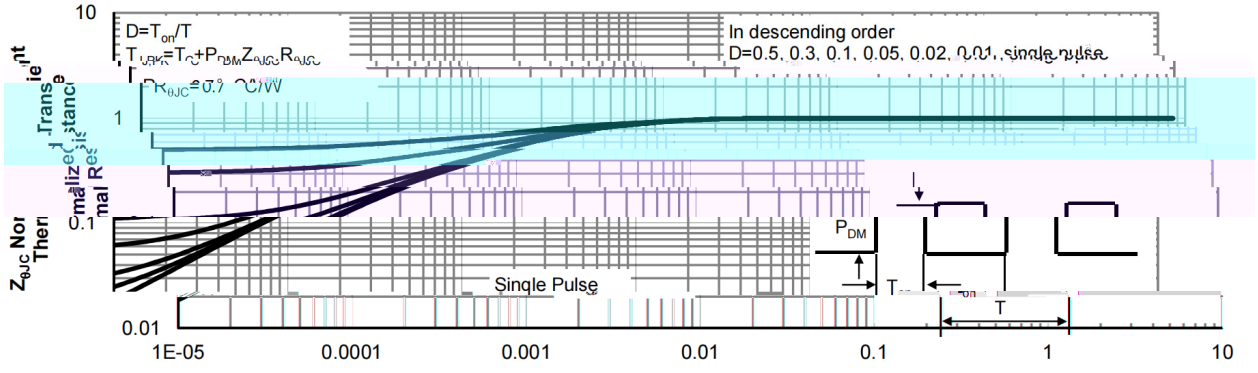




ım Continuous Drain Current
ase Temperature

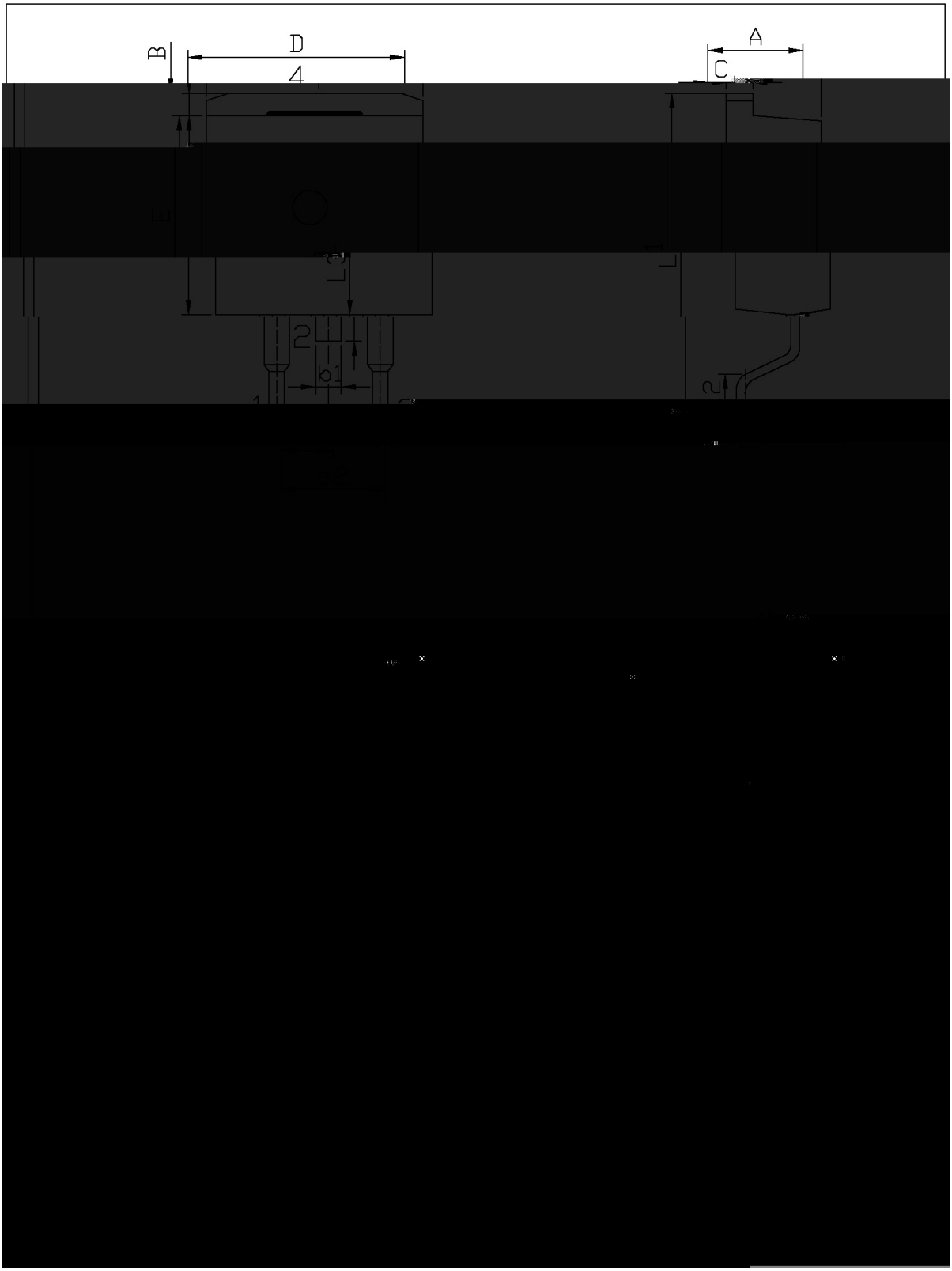
V_{GS}> or equal to 4.5V
Figure 9: Maximum Forward Biased Safe Operating Area

Figure10. Maximu
vs C

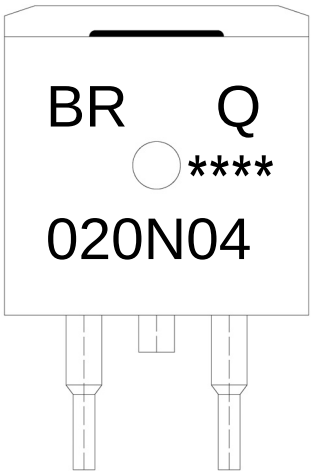


Pulse Width (s)
Figure 11: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



/ Marking Instructions



BR

Q

020N04

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Note:

BR:	Company Code
Q:	Automobile halogen-free product Code
020N04:	Product Type
****:	Lot No. Code, code change with Lot No

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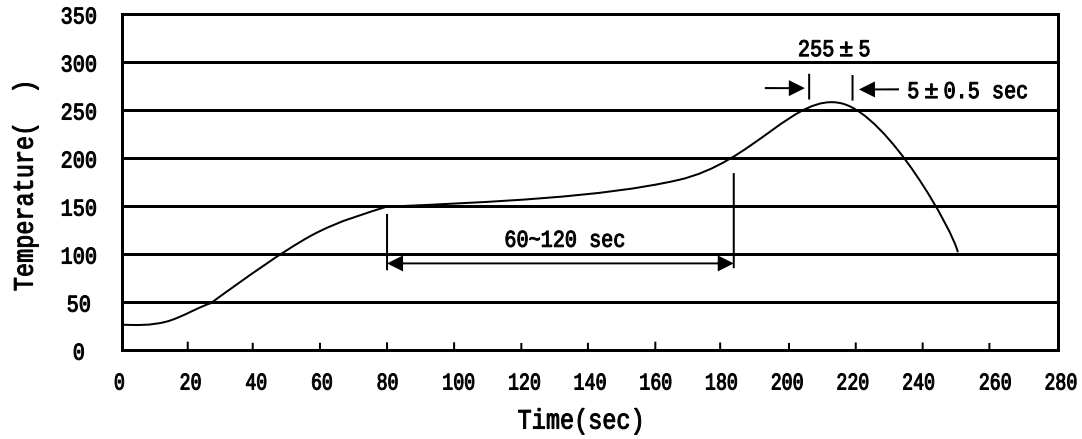

Note:

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.

/ 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 /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
TO-263	800	1	800	6	4,800	13″ ×24	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension		(unit mm³)
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-263	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

/ Notices