/ Descriptions

TO-263 N

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

/ Features

V_{DS}=60V I_D=162A

$R_{DS(on)}$@10V≤3.5mΩ(Type.3.3mΩ)

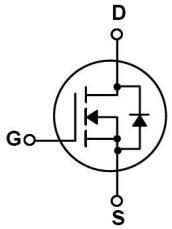
Qualified to AEC-Q101 Standards for High Reliability,

HF Product.

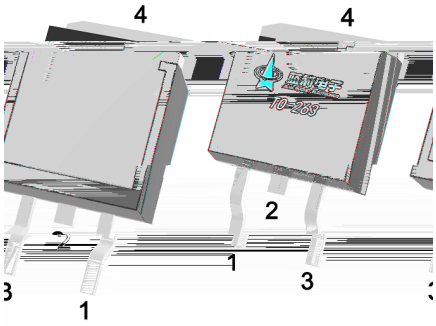
/ Applications

High frequency switching and synchronous rectification,BMS,Motor, 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}	60	V
Drain Current		I_D(Tc=25)	162	A
Pulsed Drain Current		I_{DM}	466	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	820	mJ
Avalanche Current		I_{AS}	40.5	A
Total Power Dissipation		P_D(Tc=25)	170	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t ≤ 10s	$R_{\theta JA}$	23	/W
	Steady-State		75	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.74	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	60	70		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1.0	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		3.3	3.5	m
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		4400		pF
Output Capacitance	C_{oss}			1400		
Reverse Transfer Capacitance	C_{rss}			73		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		1.1		Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=30V, I_D=20A		42		nC
Gate Source Charge	Q_{gs}			14		
Gate Drain Charge	Q_{gd}			11		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=30V R_L=1.5Ω R_{GEN}=3Ω		13		ns
Turn-On Rise Time	t_r			4		
Turn-Off Delay Time	$t_{d(off)}$			47		
Turn-Off Fall Time	t_f			6.5		

/ Electrical Characteristic Curve

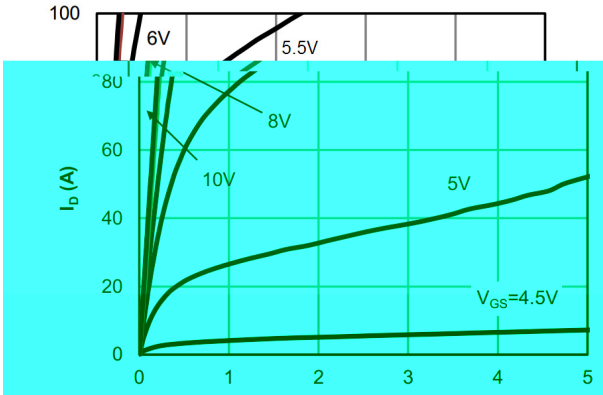


Figure 1: On-Region Characteristics

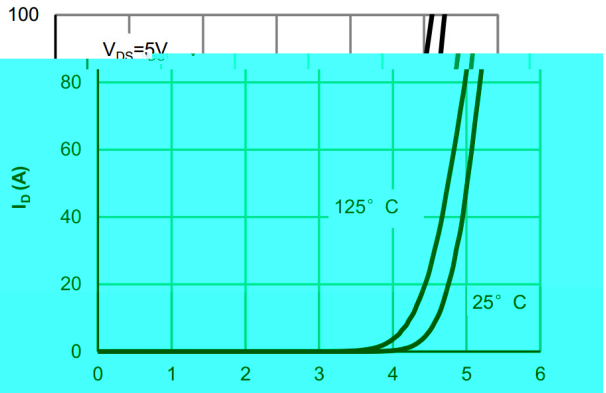


Figure 2: Transfer Characteristics

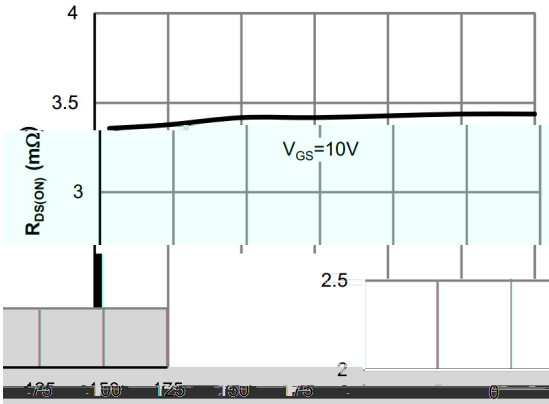


Figure 3: On-Resistance vs. Junction Temperature

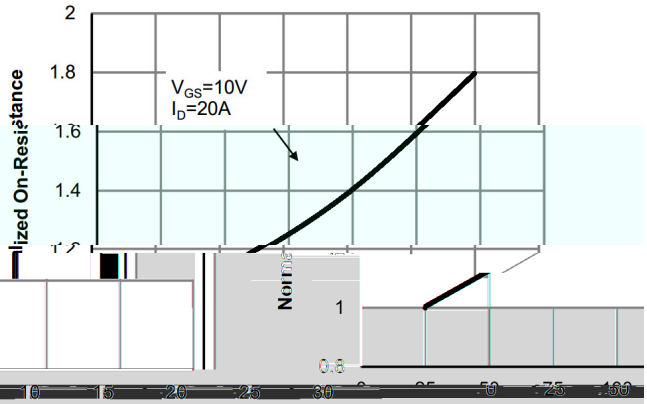


Figure 4: On-Resistance vs. Drain Current and Gate Voltage

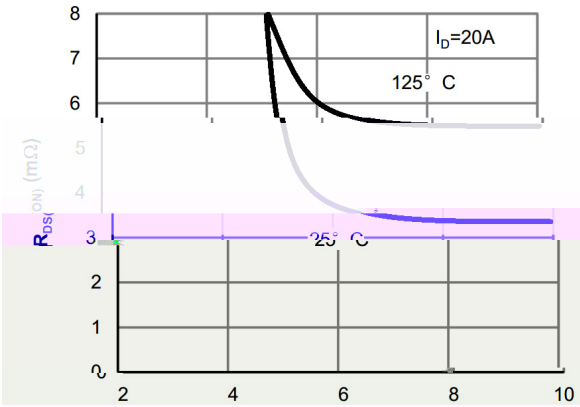


Figure 5: On-Resistance vs. Gate-Source Voltage

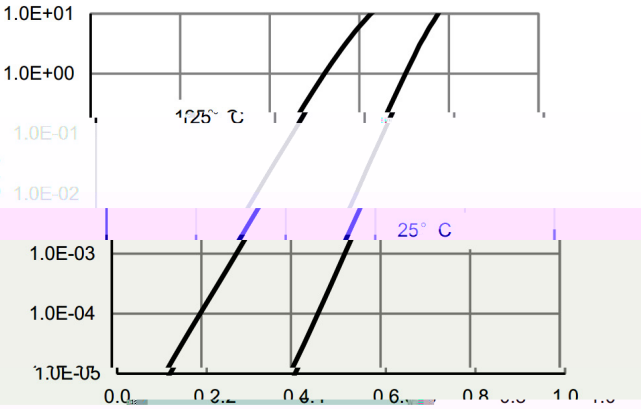


Figure 6: Body Diode Characteristics

/ Electrical Characteristic Curve

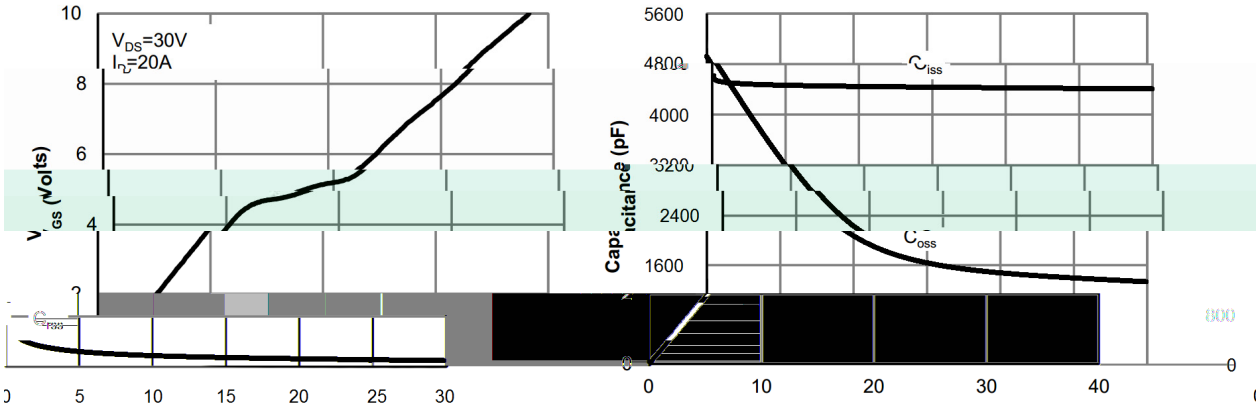


Figure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

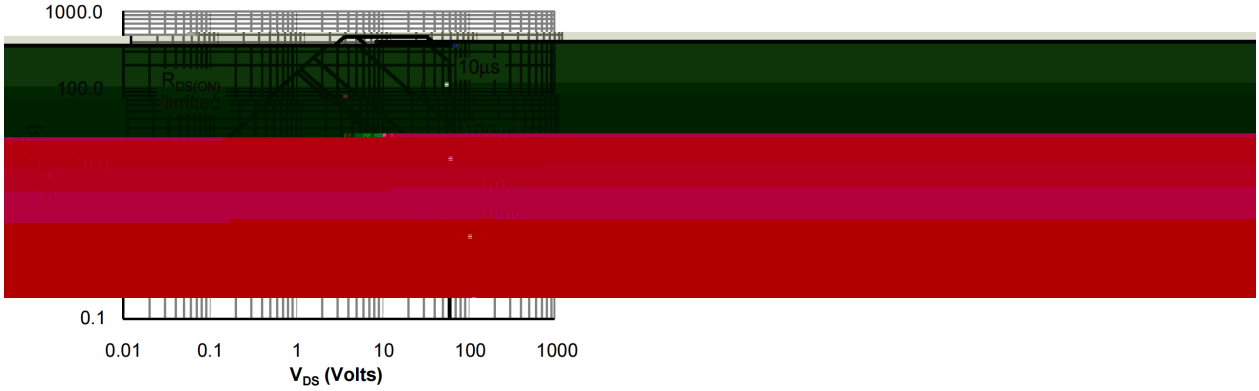


Figure 9: Maximum Forward Biased Safe Operating Area

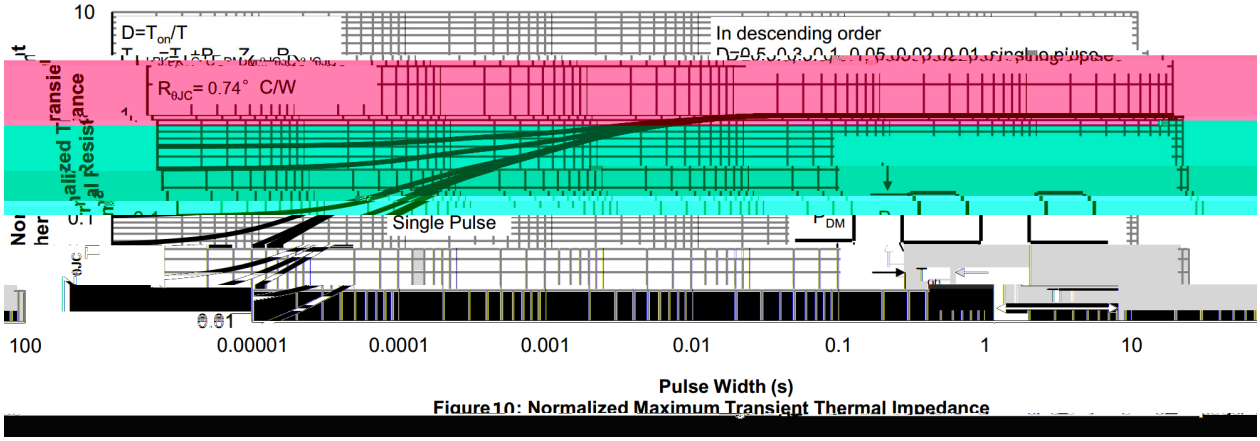
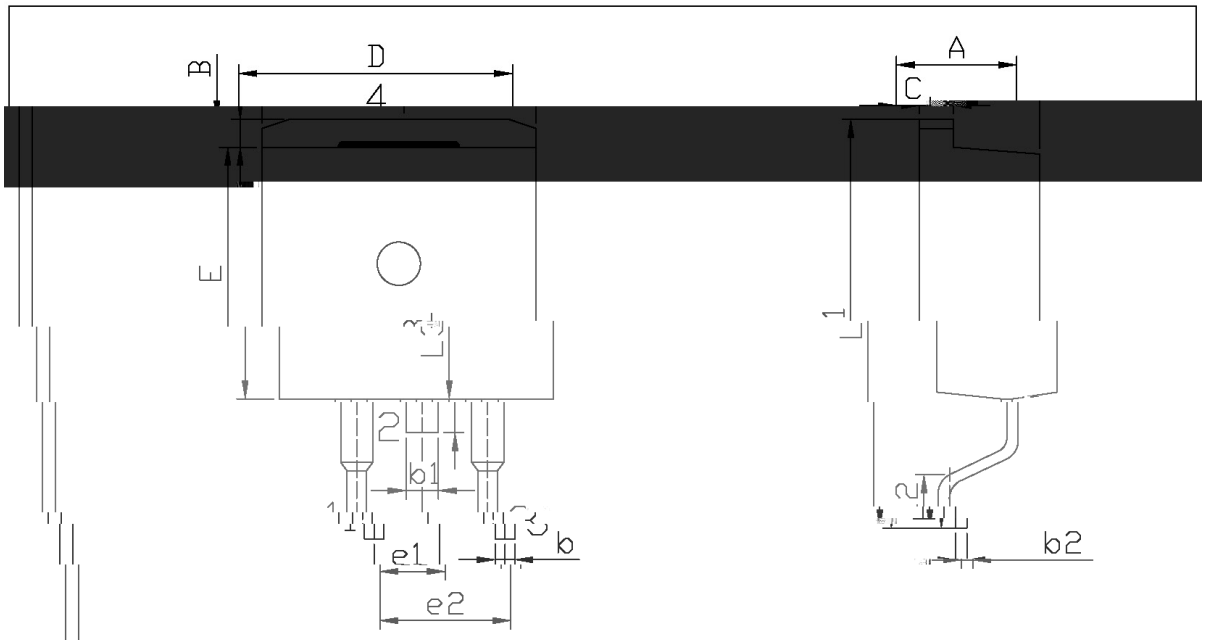


Figure 10: Normalized Maximum Transient Thermal Impedance

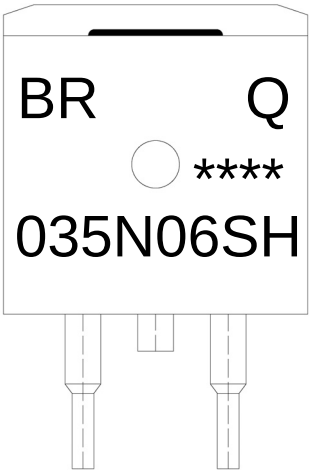
/ Package Dimensions



单位：mm

ers	Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimet	
		Min	Max		Min	Max
	A	4.30	4.70	E	9.00	9.40
	B	1.00	1.40	e	2.34	2.74

/ Marking Instructions



Q

Note:

BR:	Company Code
Q:	Automobile halogen-free product Code
035N06SH:	Product Type Code
****:	Lot No. Code, code change with Lot No

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