

/ Descriptions

TO-263 N

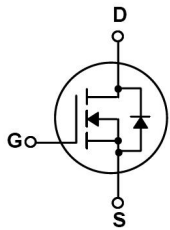
N-CHANNEL MOSFET in a TO-263 Plastic Package.

/ Features

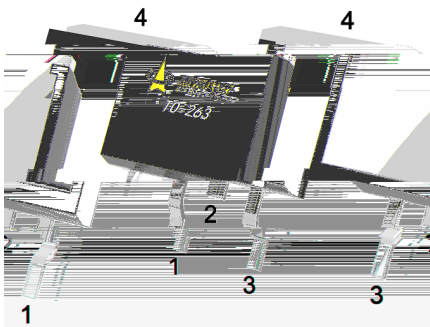
/ Applications

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_{DS}	100	V
Drain Current		$I_D(T_C=25^{\circ}C)$	180	A
Pulsed Drain Current		I_{DM}	385	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	563	mJ
Avalanche Current		I_{AS}	37.5	A
Total Power Dissipation		$P_D(T_C=25^{\circ}C)$	237	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	$t \leq 10s$	$R_{\theta JA}$	17.7	/W
	Steady-State		70.7	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.53	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$	$I_D=250\mu A$	100	112		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V$	$V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$	$V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	2	2.9	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$	$I_D=20A$		3.5	4.0	m Ω
Forward On Voltage	V_{SD}	$V_{GS}=0V$	$I_S=1A$			1.2	V
Gate resistance	R_g	$f=1MHz$			1.7		Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $f=1MHz$ $V_{GS}=0V$			5550		pF
Output Capacitance	C_{oss}				2050		
Reverse Transfer Capacitance	C_{rss}				180		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V,$ $I_D=20A$ $V_{DS}=50V,$			80		nC
Gate Source Charge	Q_{gs}				23		
Gate Drain Charge	Q_{gd}				17		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5\Omega$ $R_{GEN}=3\Omega$		25		ns
Turn-On Rise Time	t_r			17		
Turn-Off Delay Time	$t_{d(off)}$			53		
Turn-Off Fall Time	t_f			24		

/ Electrical Characteristic Curve

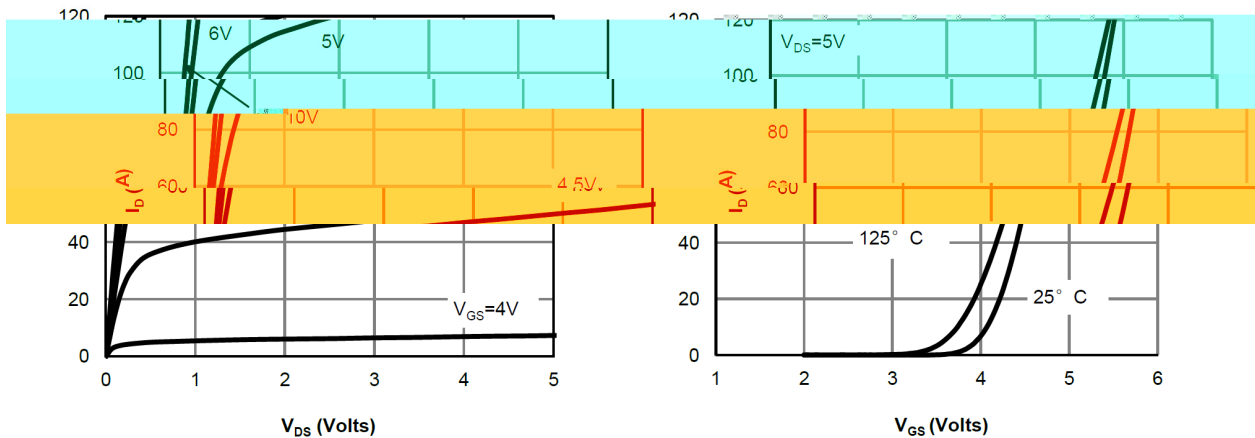


Figure 1: On-Region Characteristics

Figure 2: Transfer Characteristics

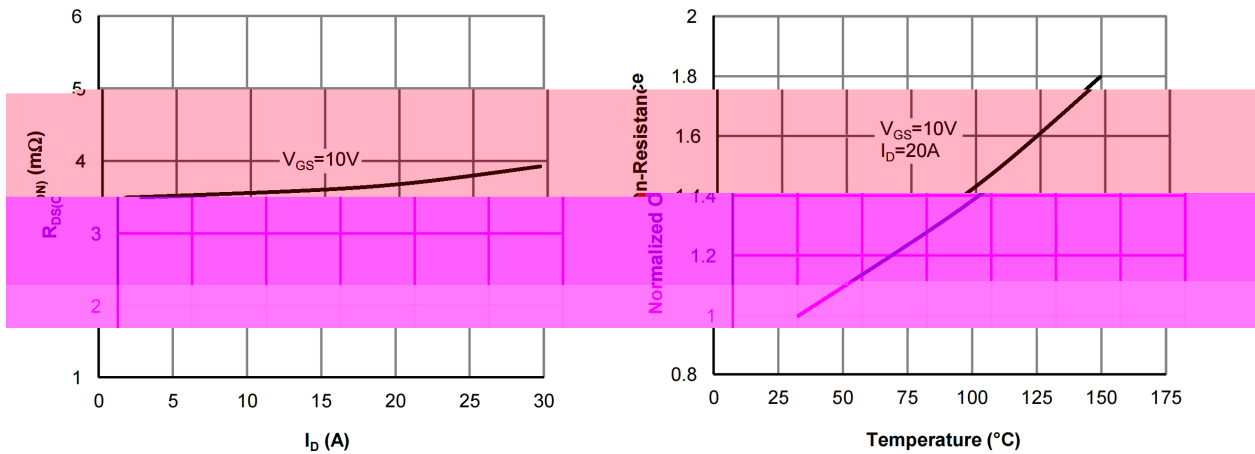


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature

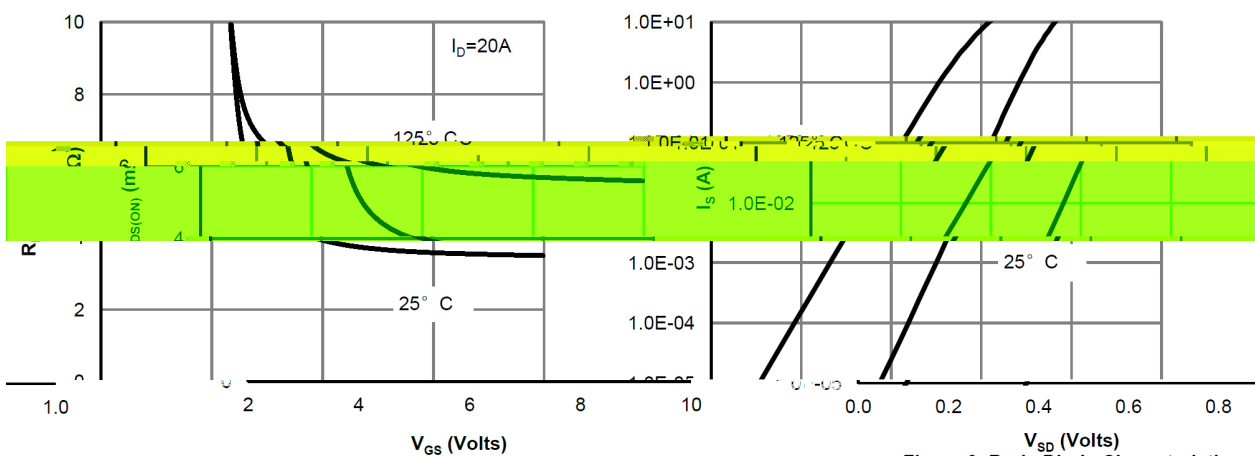


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve

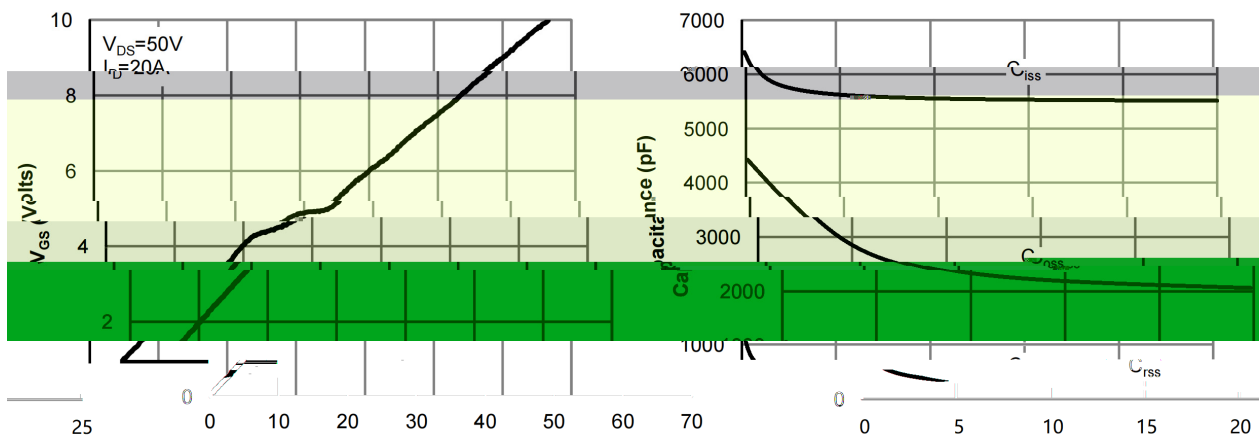


Figure 6: Capacitance Characteristics Figure 7: Gate Charge Characteristics

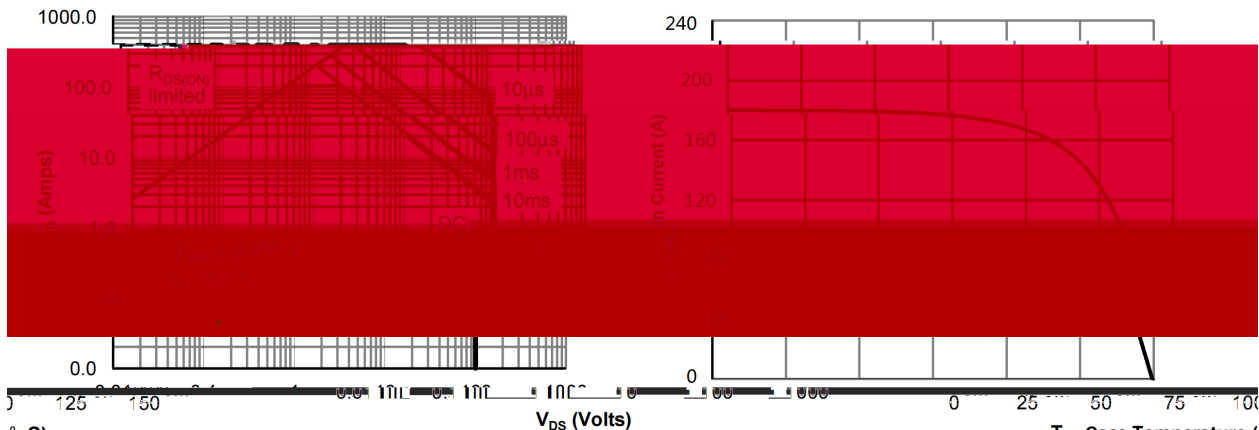


Figure 8: Maximum Forward Biased Safe Operating Area

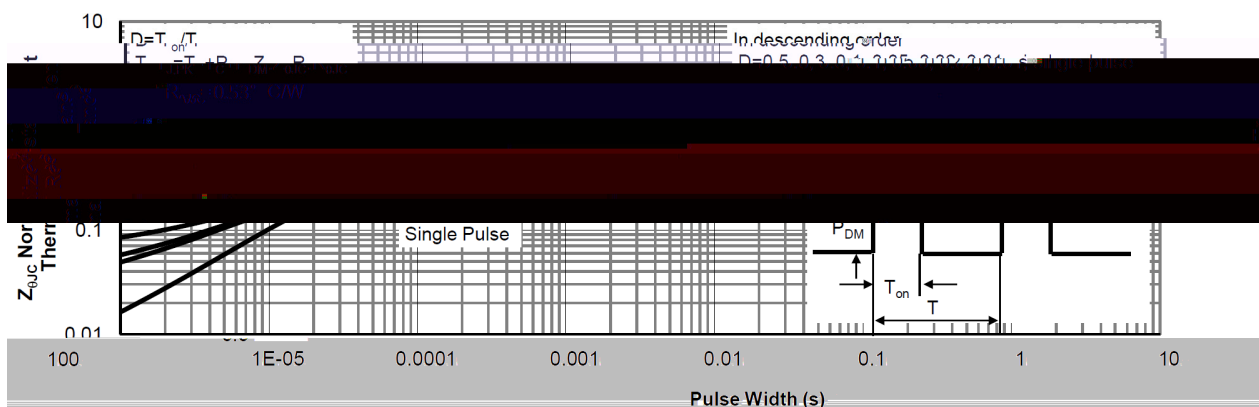
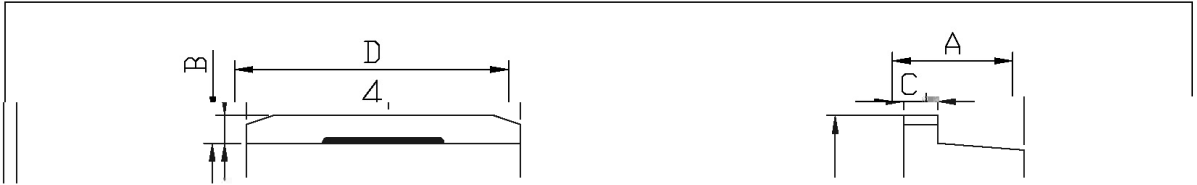


Figure 11: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

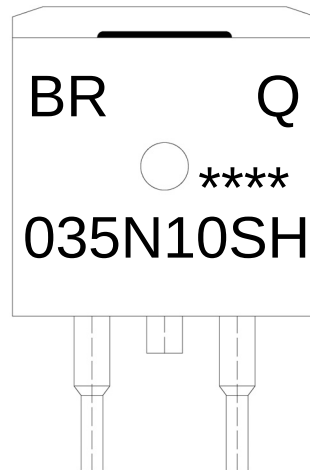


单位: mm

Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.24	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

TP-263

/ Marking Instructions



Q

Note:

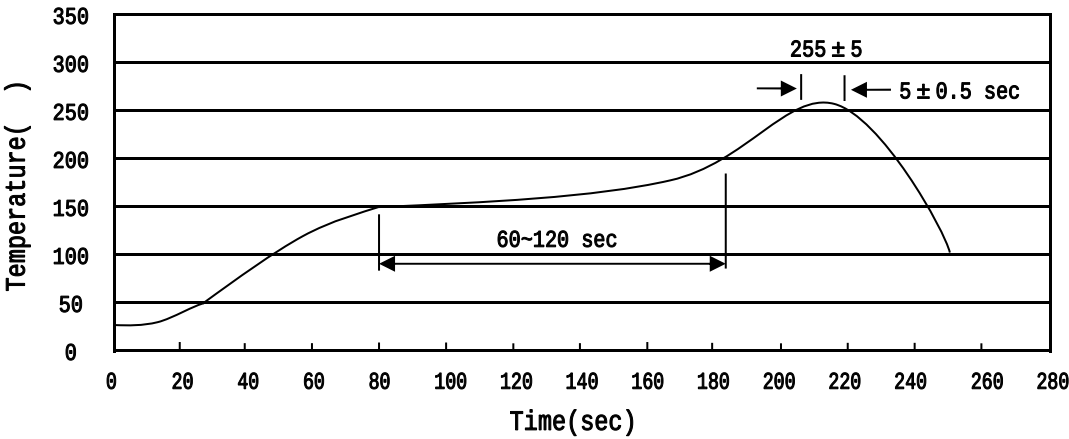
BR: Company Code

Q: Automobile halogen-free product Code

035N10SH: 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.

/ 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 mm ³)		
TO-263	800	1	800	6	4,800	13" ×24	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
TO-263	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

/ Notices