

Rev.A Dec.-2024

TO-263 N

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

$V_{DS}=60V$ $I_D=182A$

$R_{DS(on)}@10V \leq 3.0m\Omega$ (Type.2.8m Ω)

$R_{DS(on)}@6V \leq 5.0m\Omega$ (Type.3.5m Ω)

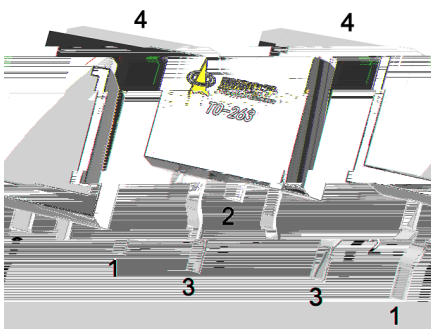
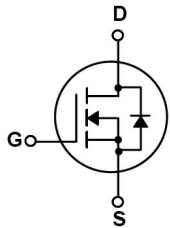
DEF0T434

Qualified to AEC-Q101 Standards for High Reliability,

HF Product.

EPV

High frequency switching and synchronous rectification,BMS,Motor, Meet the stringent requirements of automotive applications.



PIN1 G

PIN 2 4 D

PIN 3 S

See Marking Instructions.

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	60	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	182	A
Pulsed Drain Current		I_{DM}	530	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	946	mJ
Avalanche Current		I_{AS}	43.5	A
Total Power Dissipation		$P_D(T_c=25^\circ\text{C})$	180	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	$t \leq 10s$	$R_{\theta JA}$	20	/W
	Steady-State		73	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.69	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	60	71		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2	2.95	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		2.8	3.0	m Ω
	$R_{DS(on)}$	$V_{GS}=6V$ $I_D=10A$		3.5	5.0	
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}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$		6200		pF
Output Capacitance	C_{oss}			1710		
Reverse Transfer Capacitance	C_{rss}			180		
Total Gate Charge	Q_g	$V_{GS}=10V,$ $V_{DS}=30V,$ $I_D=20A$		43.5		nC
Gate Source Charge	Q_{gs}			13.2		
Gate Drain Charge	Q_{gd}			11		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=30V$ $R_L=1.5\Omega$ $R_{GEN}=3\Omega$		15.7		ns
Turn-On Rise Time	t_r			16.4		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			15		

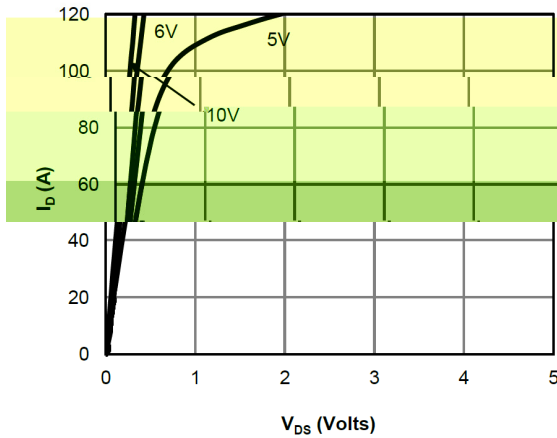


Figure 1: On-Region Characteristics

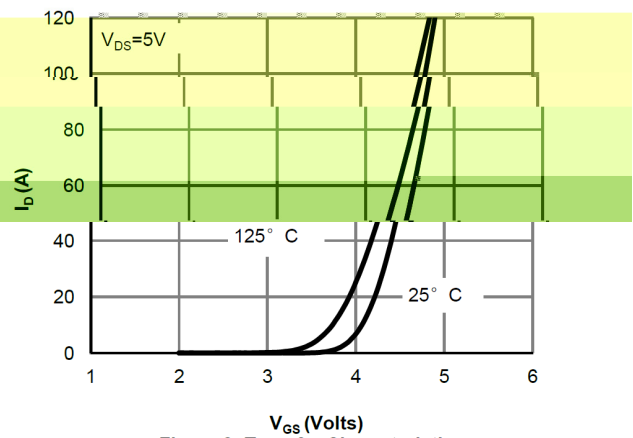


Figure 2: Transfer Characteristics

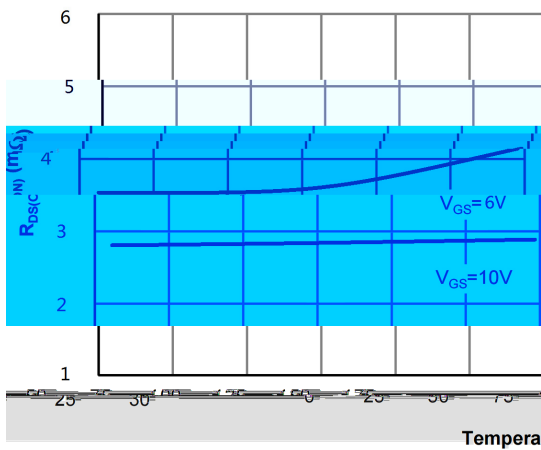


Figure 4: On-Resistance vs. Junction Temperature

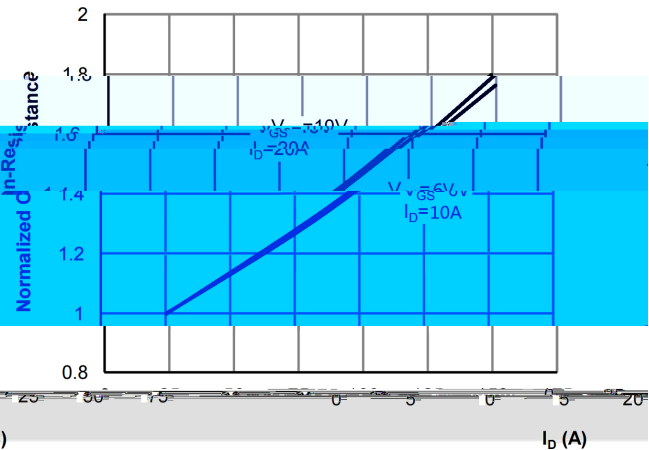


Figure 3: On-Resistance vs. Drain Current

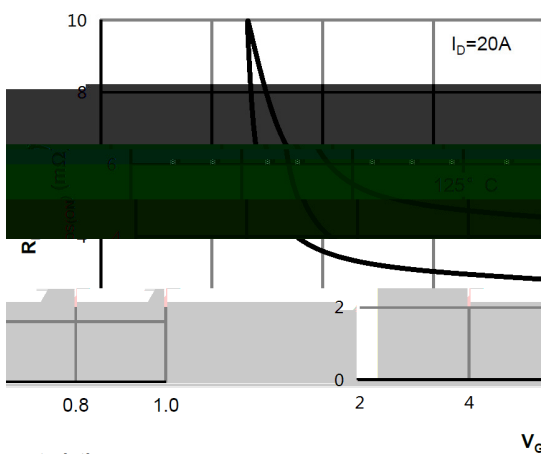


Figure 5: On-Resistance vs. Gate Voltage

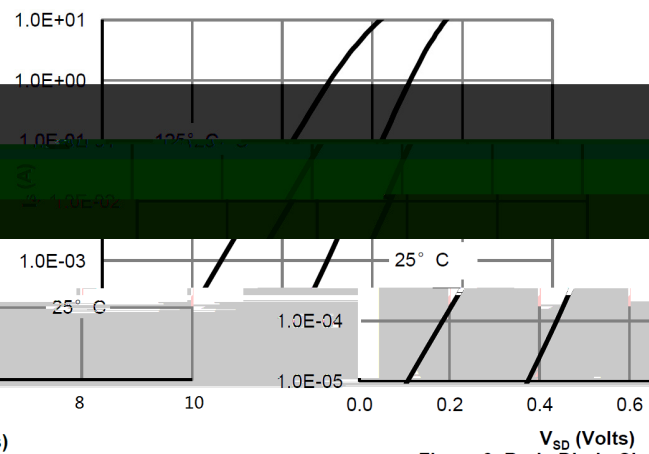


Figure 6: Body Diode Characteristics

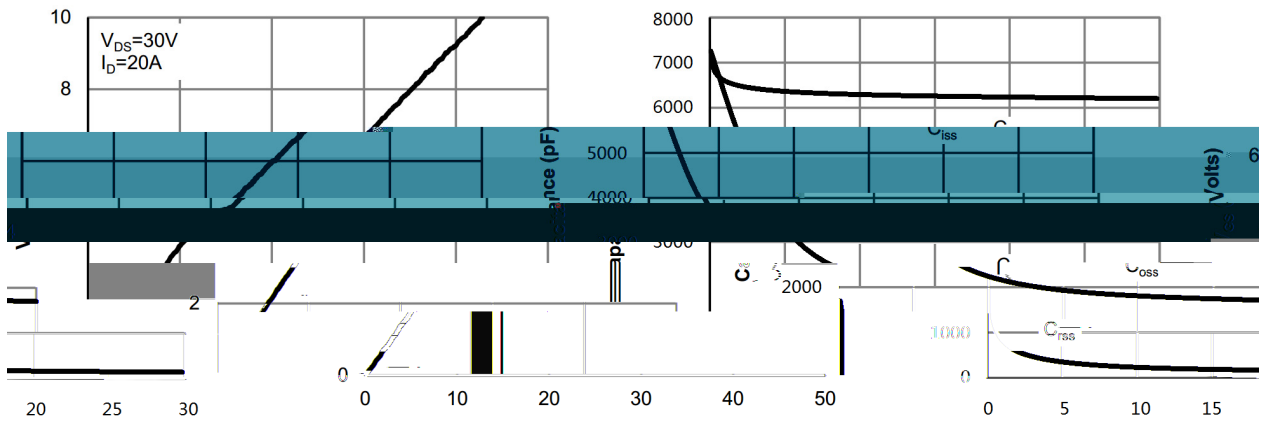


Figure 7: Gate-Charge Characteristics

Figure 8: Capacitance Characteristics

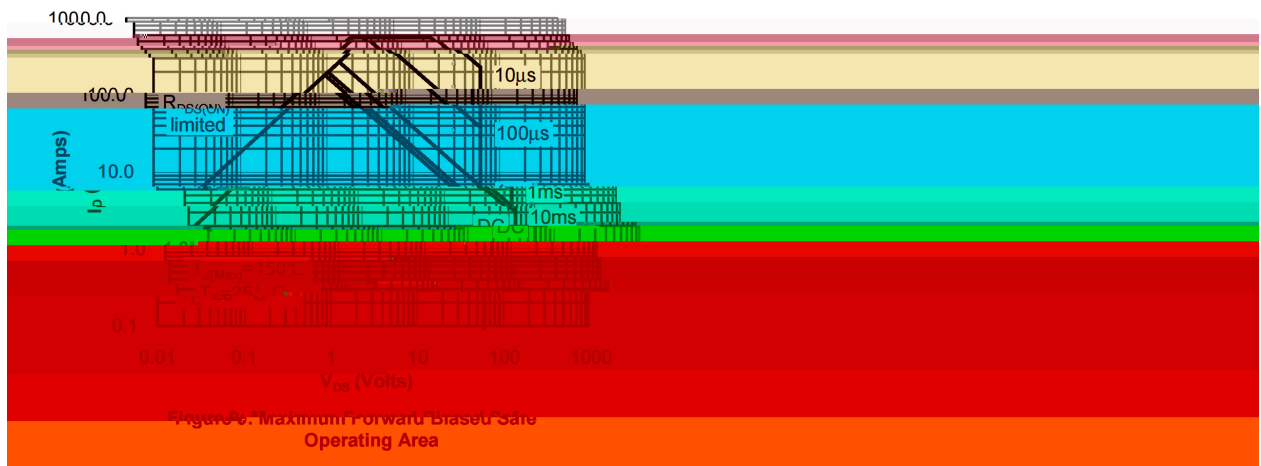


Figure 9: Maximum Forward-Biased Safe Operating Area

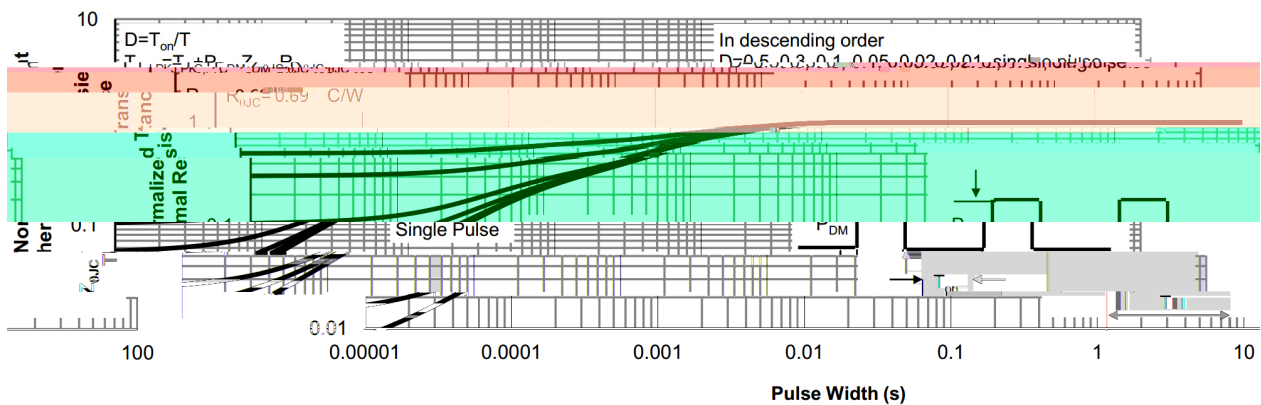
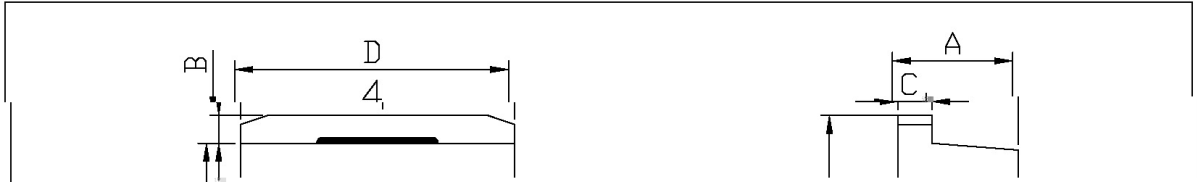
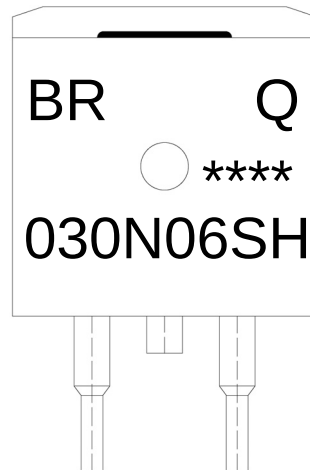


Figure 10: Normalized Maximum Transient Thermal Impedance



		symbol		Min	Max	symbol		Min	Max
4.30		A		4.30	4.70	F		0.00	0.30
1.40		B		1.00	1.40	e1		2.24	2.54
5.28		b		0.70	0.90	e2		4.88	
16.00		b1		1.15	1.35	L1		15.00	
2.84		b2		0.40	0.60	L2		2.24	
1.60		C		1.20	1.40	L3		1.20	
		D		9.80	10.20				

TI-252



EU

Q

363Q39VH

Note:

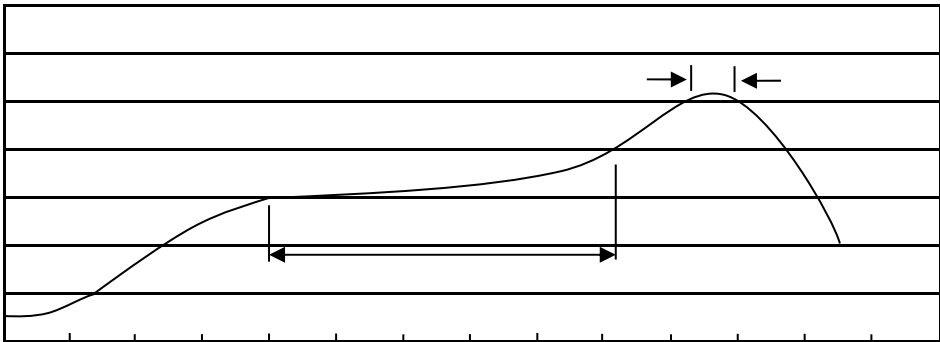
BR: Company Code

Q: Automobile halogen-free product Code

030N06SH: 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)		
	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 mm ³)		
	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