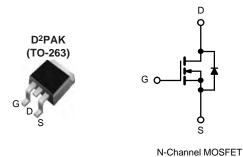


NTB75N03-06T4G-VB Datasheet N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY								
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A) ^{a, e}	Q _g (Тур)					
30	0.0024 at V _{GS} = 10 V	98	82 nC					
	0.0027 at V _{GS} = 4.5 V	98	02 110					



FEATURES

- Trench Power MOSFET .
- 100 % R_g and UIS Tested
- Compliant to RoHS Directive 2011/65/EU

APPLICATIONS

- OR-ing
- Server
- DC/DC •

Parameter	Symbol	Limit	Unit		
Drain-Source Voltage	V _{DS}	30			
Gate-Source Voltage	V _{GS}	± 20	- V		
	T _C = 25 °C		98 ^{a, e}		
Continuous Drain Current (T _J = 175 °C)	T _C = 70 °C		98 ^e		
	T _A = 25 °C	I _D	28.8 ^{b, c}	A	
	T _A = 70 °C		27 ^{b, c}		
Pulsed Drain Current	I _{DM}	300			
Avalanche Current Pulse	L = 0.1 mH	I _{AS}	36		
Single Pulse Avalanche Energy	L = 0.1 MH	E _{AS}	64.8	V	
Continuous Source-Drain Diode Current	T _C = 25 °C	I _S	90 ^{a, e}	A	
Continuous Source-Drain Diode Current	T _A = 25 °C	'S	3.13 ^{b, c}	A	
	T _C = 25 °C		250 ^a		
Movimum Dower Dissinction	T _C = 70 °C	P _D	175	14/	
Maximum Power Dissipation	T _A = 25 °C	٢D	3.75 ^{b, c}	W	
	T _A = 70 °C		2.63 ^{b, c}		
Operating Junction and Storage Temperature R	T _J , T _{stg}	- 55 to 175	°C		

THERMAL RESISTANCE RATINGS								
Parameter		Symbol	Тур.	Max.	Unit			
$Maximum Junction-to-Ambient^{b, \ d} \qquad \qquad t \leq 1$		R _{thJA}	32	40	°C/W			
Maximum Junction-to-Case	Steady State	R _{thJC}	0.5	0.6	C/W			

Notes:

a. Based on $T_C = 25 \text{ °C}$. b. Surface mounted on 1" x 1" FR4 board.

c. t = 10 sec.
d. Maximum under steady state conditions is 90 °C/W.
e. Calculated based on maximum junction temperature. Package limitation current is 90 A.



SPECIFICATIONS (T _J = 25 °C, unless otherwise noted) Parameter Symbol Test Conditions Min Type Max								
Parameter Static	Symbol	Test Conditions	Min.	Тур.	Max.	Unit		
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 µA	30			V		
V _{DS} Temperature Coefficient	VDS ΔV _{DS} /TJ	V _{GS} = 0 ν, ι _D = 230 μΛ	30	25		- mV/°C		
		I _D = 250 μA		35				
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_J$		4.5	- 7.5	0.5			
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1.5		2.5	V		
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA		
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = 30 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$			1	μA		
		$V_{DS} = 30 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 55 \text{ °C}$			10			
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	90			A		
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 10 V, I _D = 28.8 A		0.0024		Ω		
	D3(01)	$V_{GS} = 4.5 \text{ V}, \text{ I}_{D} = 27 \text{ A}$		0.0027				
Forward Transconductance ^a	9 _{fs}	V _{DS} = 15 V, I _D = 28.8 A		160		S		
Dynamic ^b				-				
Input Capacitance	C _{iss}			12065		pF		
Output Capacitance	C _{oss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz		1725				
Reverse Transfer Capacitance	C _{rss}			970				
Total Gate Charge	Qg	V_{DS} = 15 V, V_{GS} = 10 V, I_{D} = 28.8 A		171	257	- nC		
	_			81.5	123			
Gate-Source Charge	Q _{gs}	V_{DS} = 15 V, V_{GS} = 4.5 V, I_{D} = 28.8 A		34				
Gate-Drain Charge	Q _{gd}			29				
Gate Resistance	R _g	f = 1 MHz		1.4	2.1	Ω		
Turn-On Delay Time	t _{d(on)}			18	27			
Rise Time	t _r	V_{DD} = 15 V, R_L = 0.625 Ω		11	17	- ns		
Turn-Off Delay Time	t _{d(off)}	$I_{D}\cong$ 24 A, V_{GEN} = 10 V, R_{g} = 1 Ω		70	105			
Fall Time	t _f			10	15			
Turn-On Delay Time	t _{d(on)}			55	83			
Rise Time	t _r	V_{DD} = 15 V, R _L = 0.67 Ω		180	270			
Turn-Off Delay Time	t _{d(off)}	${ m I}_{ m D}\cong$ 22.5 A, ${ m V}_{ m GEN}$ = 4.5 V, ${ m R}_{ m g}$ = 1 Ω		55	83			
Fall Time	t _f			12	18			
Drain-Source Body Diode Characteristic	s							
Continuous Source-Drain Diode Current	۱ _S	T _C = 25 °C			90			
Pulse Diode Forward Current ^a	I _{SM}				90	A		
Body Diode Voltage	V _{SD}	I _S = 22 A		0.8	1.2	V		
Body Diode Reverse Recovery Time	t _{rr}	-		52	78	ns		
Body Diode Reverse Recovery Charge	Q _{rr}		<u> </u>	70.2	105	nC		
Reverse Recovery Fall Time	t _a	$I_F = 20 \text{ A}, \text{ di/dt} = 100 \text{ A/}\mu\text{s}, T_J = 25 \text{ °C}$		27				
Reverse Recovery Rise Time	t _b			25		ns		

Notes:

a. Pulse test; pulse width \leq 300 $\mu s,$ duty cycle \leq 2 %.

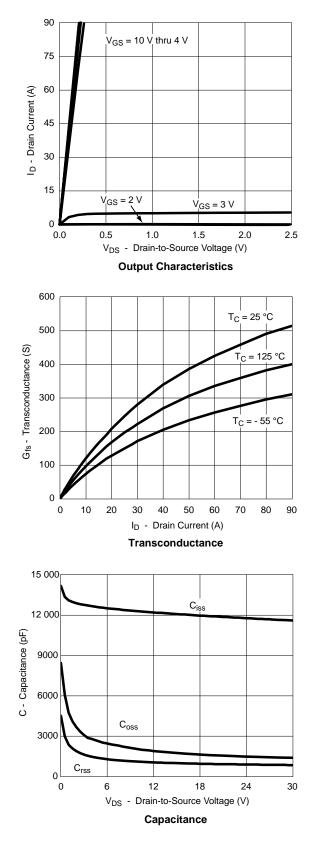
b. Guaranteed by design, not subject to production testing.

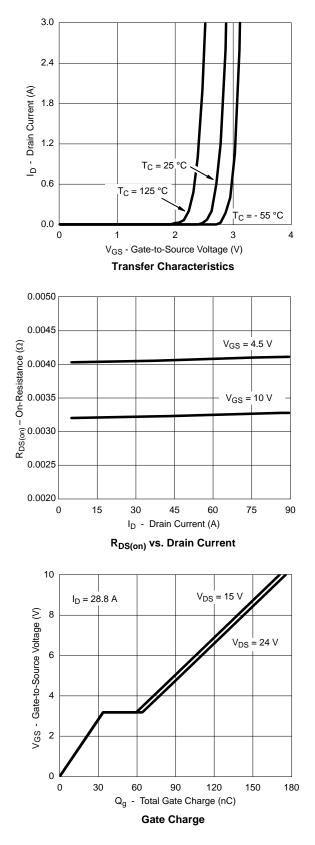
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

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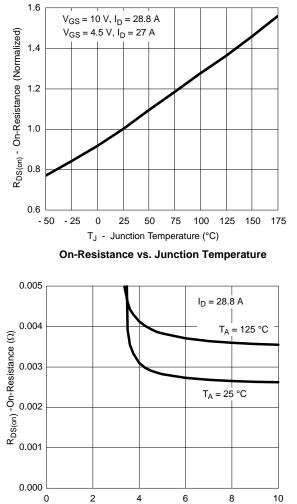
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

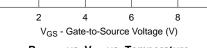


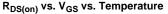


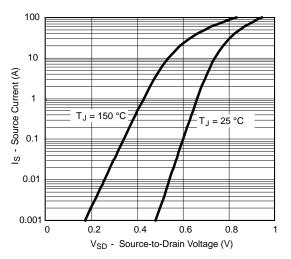


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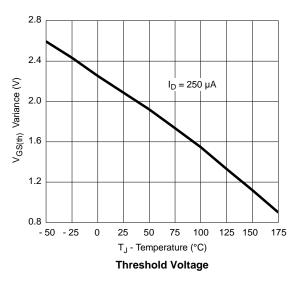


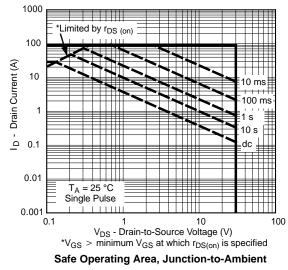




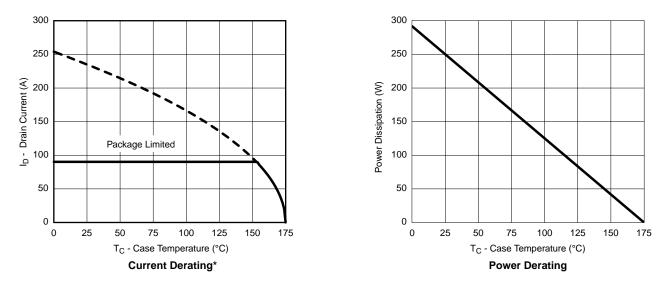


Forward Diode Voltage vs. Temperature



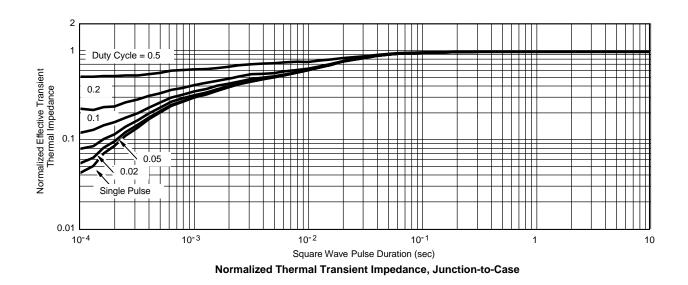






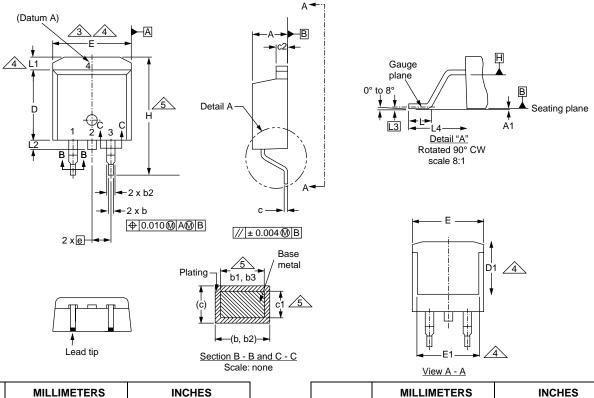
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

*The power dissipation P_D is based on $T_{J(max)} = 175$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.





TO-263AB (HIGH VOLTAGE)



	MILLIN	IETERS	INC	CHES		MILLIMETERS		INCHES	
DIM.	MIN.	MAX.	MIN.	MAX.	DIM.	MIN.	MAX.	MIN.	MAX.
А	4.06	4.83	0.160	0.190	D1	6.86	-	0.270	-
A1	0.00	0.25	0.000	0.010	E	9.65	10.67	0.380	0.420
b	0.51	0.99	0.020	0.039	E1	6.22	-	0.245	-
b1	0.51	0.89	0.020	0.035	е	2.54 BSC		0.100 BSC	
b2	1.14	1.78	0.045	0.070	Н	14.61	15.88	0.575	0.625
b3	1.14	1.73	0.045	0.068	L	1.78	2.79	0.070	0.110
С	0.38	0.74	0.015	0.029	L1	-	1.65	-	0.066
c1	0.38	0.58	0.015	0.023	L2	-	1.78	-	0.070
c2	1.14	1.65	0.045	0.065	L3	0.25 BSC		0.010 BSC	
D	8.38	9.65	0.330	0.380	L4	4.78	5.28	0.188	0.208
ECN: S-82 DWG: 597	110-Rev. A, ⁻ 0	15-Sep-08	•						

Notes

1. Dimensioning and tolerancing per ASME Y14.5M-1994.

2. Dimensions are shown in millimeters (inches).

3. Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outmost extremes of the plastic body at datum A.

4. Thermal PAD contour optional within dimension E, L1, D1 and E1.

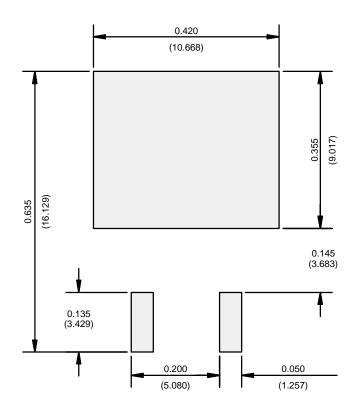
5. Dimension b1 and c1 apply to base metal only.

6. Datum A and B to be determined at datum plane H.

7. Outline conforms to JEDEC outline to TO-263AB.



RECOMMENDED MINIMUM PADS FOR D²PAK: 3-Lead



Recommended Minimum Pads Dimensions in Inches/(mm)



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