

Winsem Technology Corp.

800V N-Channel Power MOSFET

Features

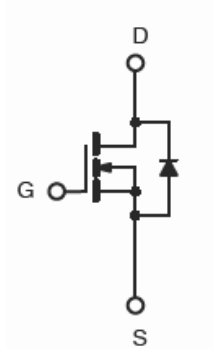
- High Voltage: $BV_{DSS}=800V(\text{Min.})$
- $I_D : 3A$
- Robust high voltage termination
- Avalanche energy specified
- Improved dv/dt capability

Application

- Ballast Bridge
- Switch Mode Power Supplier
- Power Factor Correction
- Lighting

Ordering Information

Type NO	Marking	Package Code
WMI3N80	3N80I	TO-251



Absolute maximum ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Rating	Unit	
Drain-source voltage	V_{DSS}	800	V	
Gate-source voltage	V_{GSS}	± 30	V	
Drain current (DC) *	I_D	$T_C=25^\circ\text{C}$	3.0	A
		$T_C=100^\circ\text{C}$	1.83	A
Drain current (Pulsed) *	I_{DM}	12	A	
Drain power dissipation	P_D	94	W	
Avalanche current (Single)	I_{AS}	3.0	A	
Single pulsed avalanche energy	E_{AS}	283	mJ	
Avalanche current (Repetitive) ①	I_{AR}	3.0	A	
Repetitive avalanche energy ①	E_{AR}	9.4	mJ	
Junction temperature	T_J	150	$^\circ\text{C}$	
Storage temperature range	T_{stg}	-55~150	$^\circ\text{C}$	

* Limited by maximum junction temperature

Characteristic	Symbol	Typ.	Max	Unit	
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	1.33	$^\circ\text{C}/\text{W}$
	Junction-ambient	$R_{th(J-A)}$	-	110	

Electrical Characteristics (T_C=25°C

unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =250 μA, V _{GS} =0V	800	-	-	V	
Gate threshold voltage	V _{GS(th)}	I _D =250 μA, V _{GS} = V _{DS}	2.0	-	4.0	V	
Drain-source cut-off current	I _{DSS}	V _{DS} =600V, V _{GS} =0V	-	-	10	μA	
Gate leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V	-	-	±100	nA	
Drain-source on-resistance ③	R _{DS(on)}	V _{GS} =10V, I _D =1.5A	-	3.36	4.2	Ω	
Forward transfer conductance ③	g _{fs}	V _{DS} =30V, I _D =1.5A	-	3.7	-	S	
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V f=1 MHz	-	696	-	pF	
Output capacitance	C _{oss}		-	65	-		
Reverse transfer capacitance	C _{rss}		-	10.2	-		
Turn-on delay time	t _{d(on)}	V _{DD} =400V, I _D =3A R _G =25Ω	-	48	-	ns	
Rise time	t _r		-	36	-		
Turn-off delay time	t _{d(off)}		②③	-	106		-
Fall time	t _f		-	41	-		
Total gate charge	Q _g	V _{DS} =640V, V _{GS} =10V I _D =3.0A	-	19	-	nC	
Gate-source charge	Q _{gs}		-	4	-		
Gate-drain charge	Q _{gd}		②③	-	7.6		-

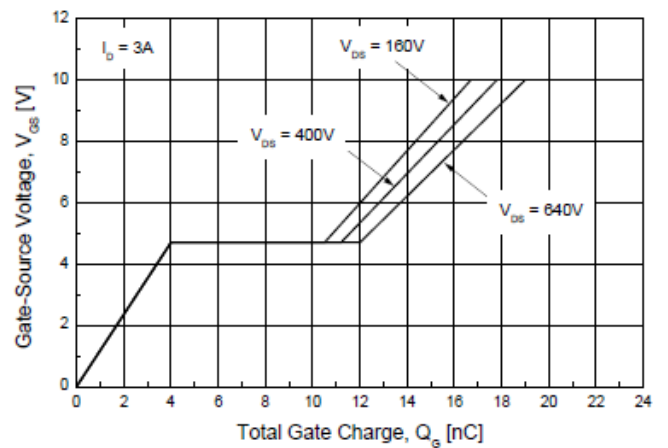
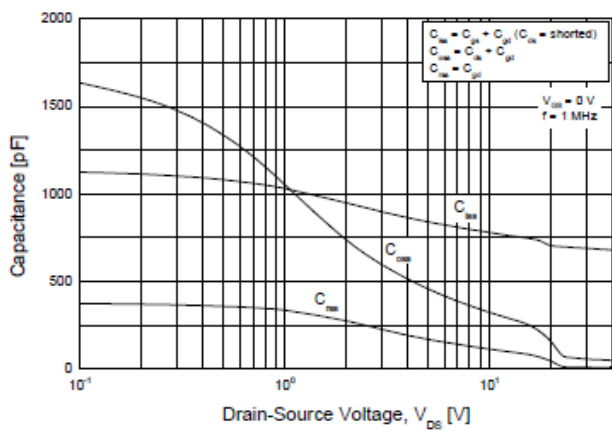
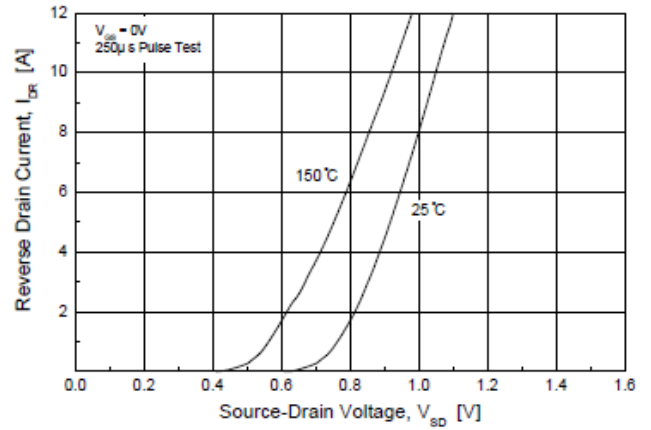
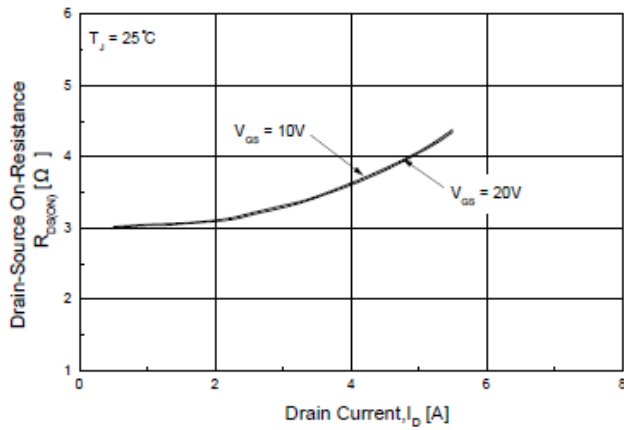
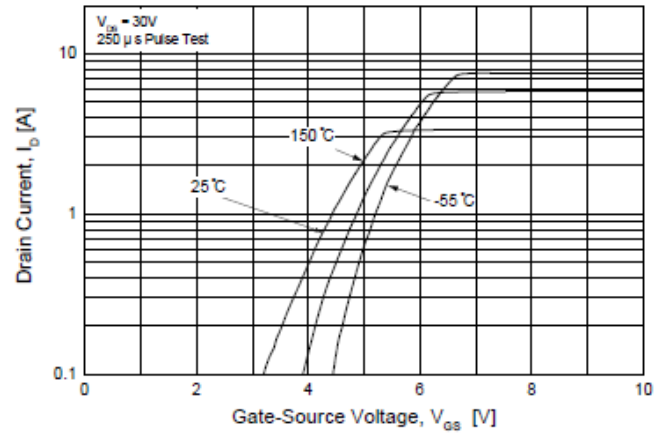
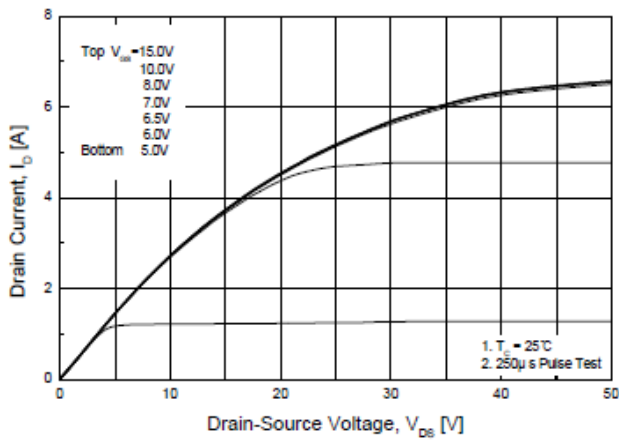
Source-Drain Diode Ratings and Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Source current (DC)	I _S	-	-	-	3.0	A
Source current (Pulsed) ①	I _{SP}		-	-	12	
Forward voltage ③	V _{SD}	V _{GS} =0V, I _S =3.0A	-	-	1.5	V
Reverse recovery time	t _{rr}	I _S =3.0A, V _{GS} =0V dI _S /dt=100A/μs	-	372	-	ns
Reverse recovery charge	Q _{rr}		-	1.8	-	μC

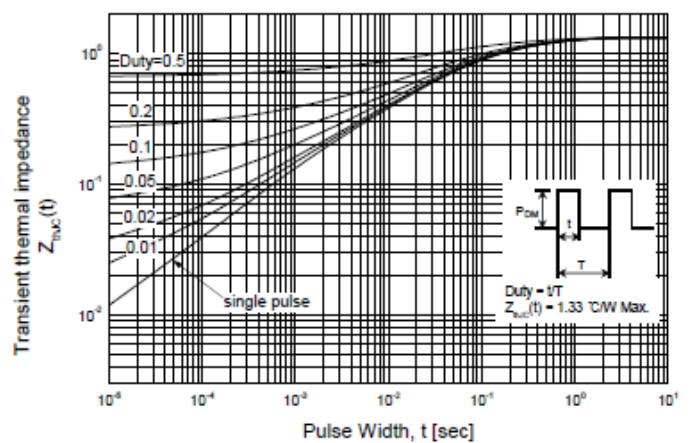
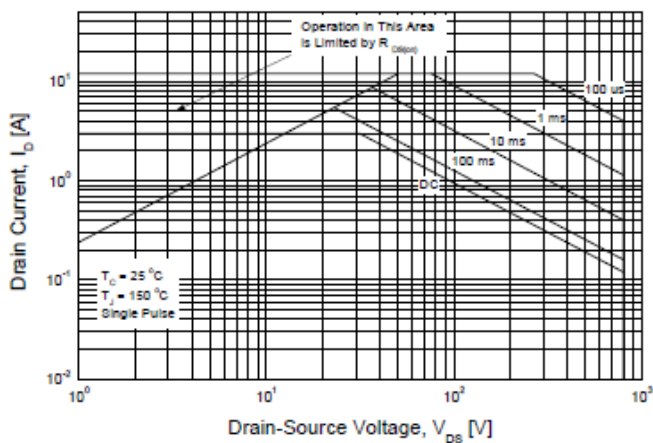
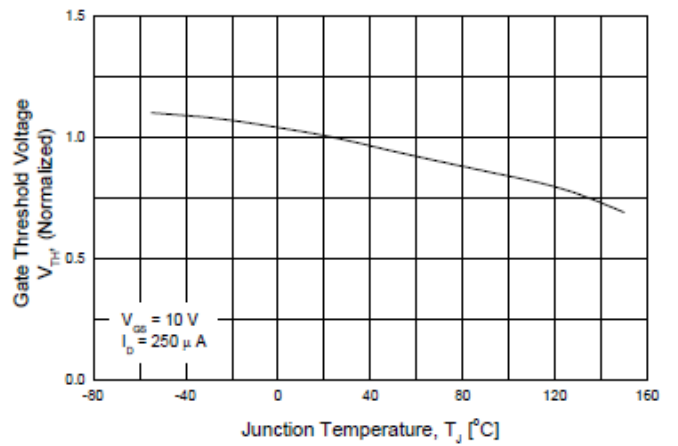
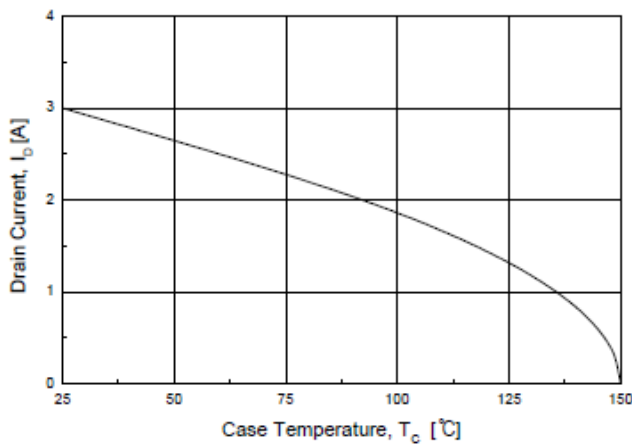
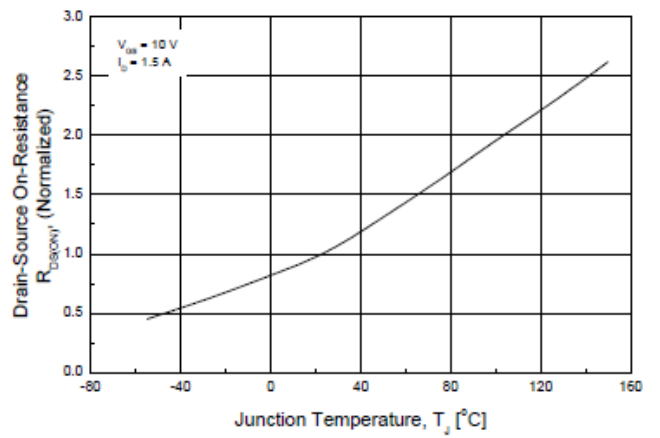
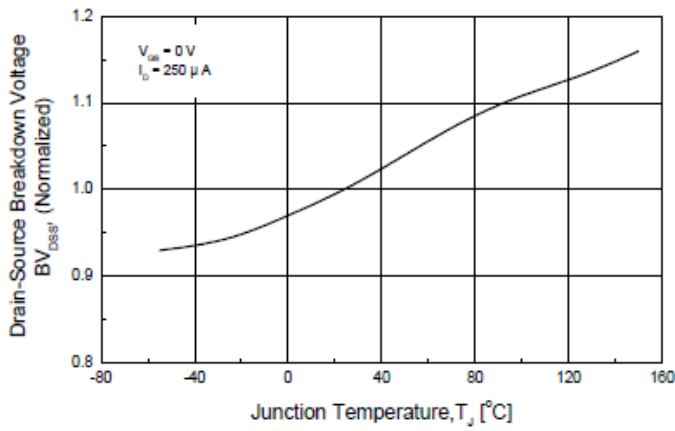
Note ;

- ① Repetitive rating : Pulse width limited by maximum junction temperature
- ② Pulse Test : Pulse width ≤ 300 μs, Duty cycle ≤ 2%
- ③ Essentially independent of operating temperature

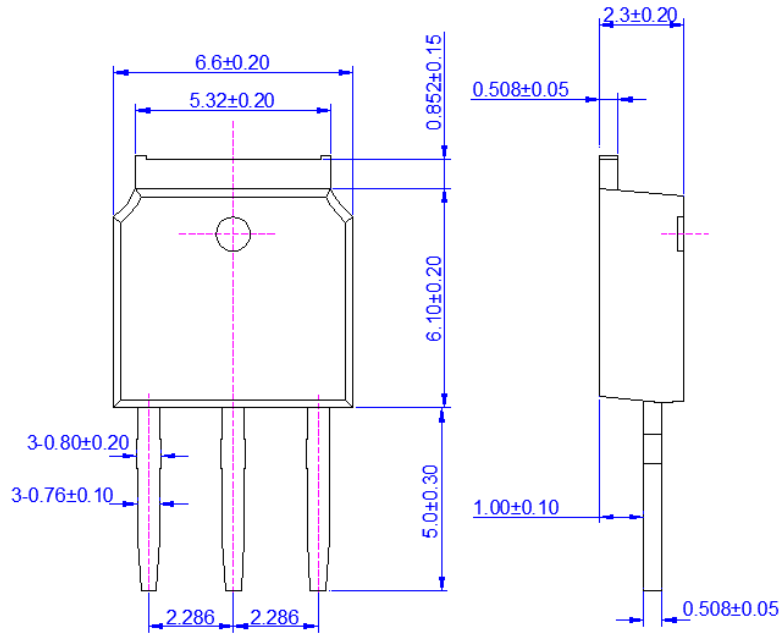
Electrical Characteristic Curves



Electrical Characteristic Curves

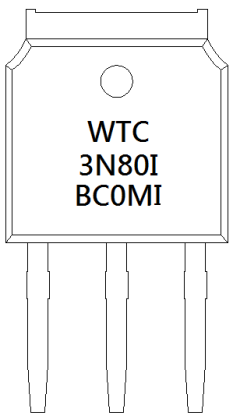


Outline Dimension : TO-251



Unit : mm

Marking Diagram



First Line	WTC	Company Name	
Second Line	3N80I	Product Code	
Third Line	BCOMD BCOMI	1st (Year Code)	A-2010 B-2011 C-2012 ...
		2nd (Month Code)	A-Jan B-Feb C-Mar D-Apr E-May F-Jun G-Jul H-Aug I-Sep J-Oct K-Nov L-Dec
		3rd (Lot Code)	0-1 , A-9
		4th (Product Code)	M-MOS , T-Transsistor
		5th (Package Code)	D-TO-252 , I-TO-251
		6th (Spec Code)	(Reserve)