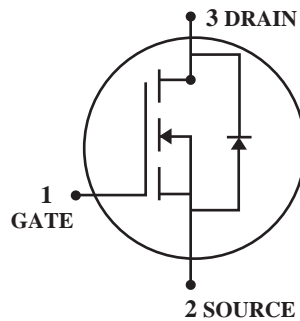


N-Channel Enhancement Mode Power MOSFET

 Lead(Pb)-Free

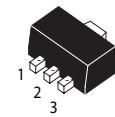


DRAIN CURRENT
5.0 AMPERES

DRAIN SOURCE VOLTAGE
60 VOLTAGE

Features:

- * Simple Drive Requirement.
- * Super High Density Cell Design for Extremely Low $R_{DS(ON)}$.



1. GATE
2. DRAIN
3. SOURCE

SOT-89

Maximum Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$ 5.0 $T_A=70^\circ\text{C}$ 4.0	A
Pulsed Drain Current	I_{DM}	10	A
Total Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.50	W
Maximum Junction-Ambient ³	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55~+150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~+150	$^\circ\text{C}$

Note 1. Pulse width limited by Max. junction temperature.

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

3. Surface mounted on FR4 board, $t \leq 10\text{sec}$.

Device Marking

WTM2310A = 2310A

Electrical Characteristics (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	60	-	-	V	V _{GS} =0, I _D =250uA
Gate Threshold Voltage	V _{GS(th)}	0.5	-	1.5	V	V _{DS} =V _{GS} , I _D =250uA
Forward Transconductance	g _{fs}	-	12	-	S	V _{DS} =15V, I _D =4A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	1	uA	V _{DS} =60V, V _{GS} =0
Drain-Source Leakage Current(T _j =55°C)		-	-	10	uA	V _{DS} =60V, V _{GS} =0
Static Drain-Source On-Resistance	R _{Ds(ON)}	-	-	115	mΩ	V _{GS} =10V, I _D =5.0A
		-	-	125		V _{GS} =4.5V, I _D =4.5A
Total Gate Charge ²	Q _g	-	4.0	-	nC	I _D =4A V _{DS} =30V V _{GS} =4.5V
Gate-Source Charge	Q _{gs}	-	1.2	-		
Gate-Drain ("Miller") Charge	Q _{gd}	-	1.0	-		
Turn-on Delay Time ²	T _{d(on)}	-	6	-	ns	V _{DD} =30V I _D =2.5A V _{GS} =10V R _G =6Ω R _L =12Ω
Rise Time	T _r	-	12	-		
Turn-off Delay Time	T _{d(off)}	-	18	-		
Fall Time	T _f	-	10	-		
Input Capacitance	C _{iss}	-	320	-	pF	V _{GS} =0V V _{DS} =30V f=1.0MHz
Output Capacitance	C _{oss}	-	42	-		
Reverse Transfer Capacitance	C _{rss}	-	20	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	1.2	V	I _S =2.5A, V _{GS} =0V

Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse width ≤ 300us, duty cycle ≤ 2%.

3. Surface mounted on FR4 board, t ≤ 10sec.

Characteristics Curve

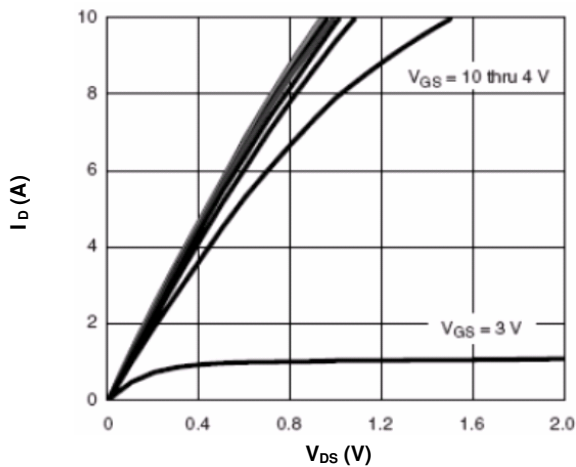


Fig 1. Typical Output Characteristics

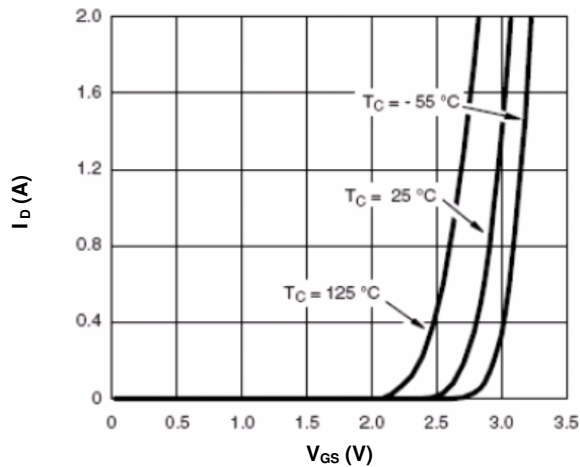


Fig 2. Transfer Characteristics

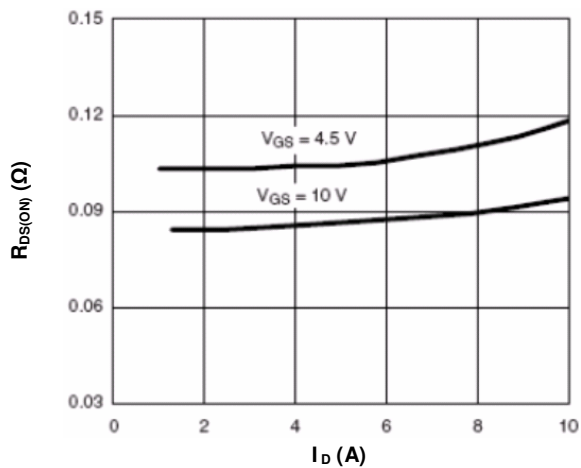


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

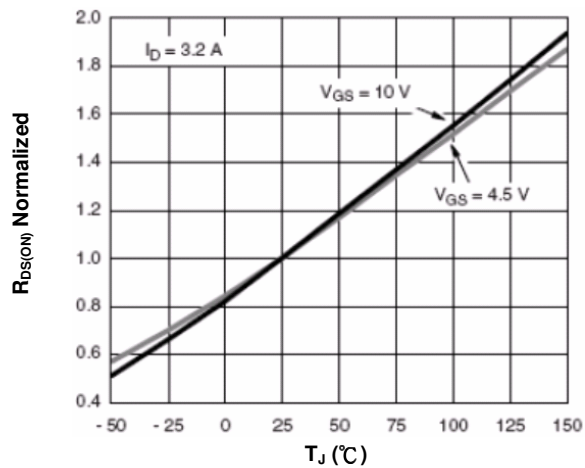


Fig 4. On-Resistance vs. Junction Temperature

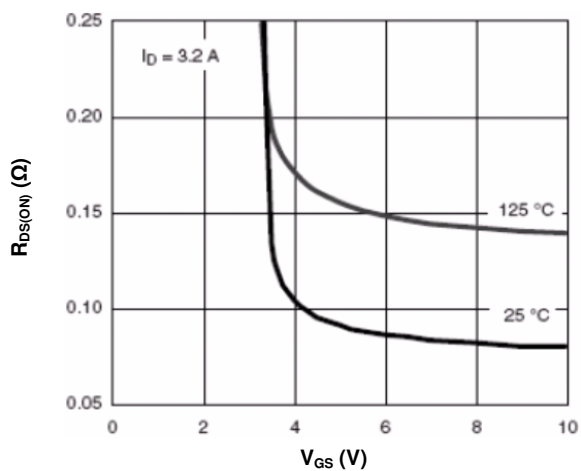


Fig 5. On-Resistance vs. Gate-Source Voltage

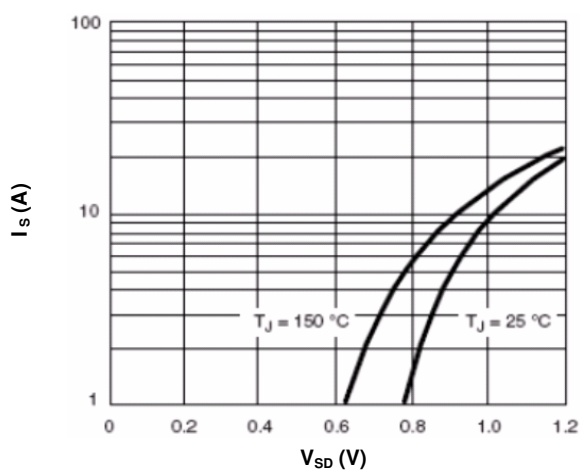


Fig 6. Body Diode Characteristics

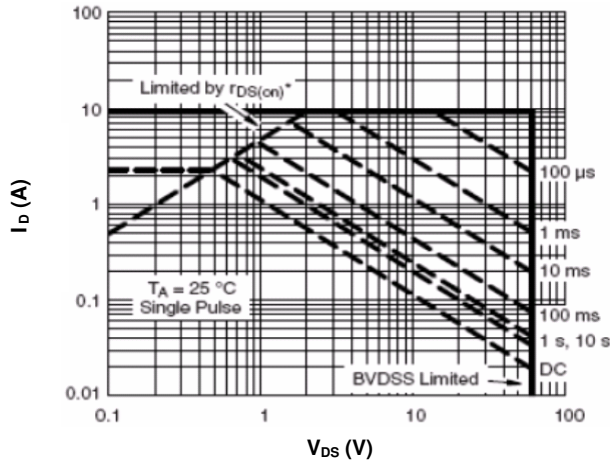


Fig 7. Maximum Safe Operating Area

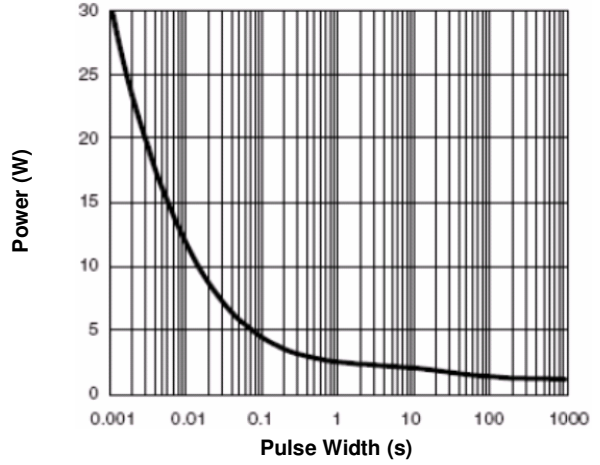


Fig 8. Single Pulse Maximum Power Dissipation

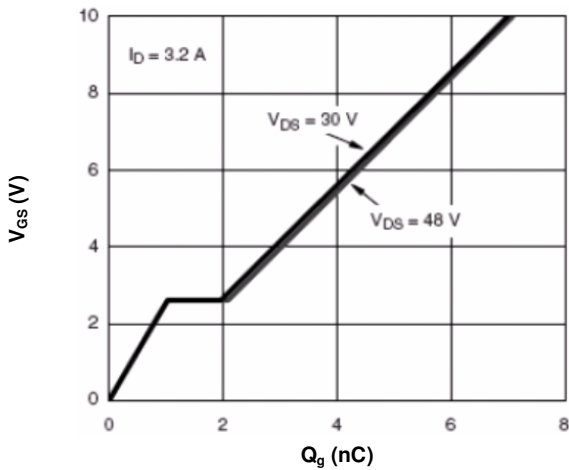


Fig 9. Gate Charge Characteristics

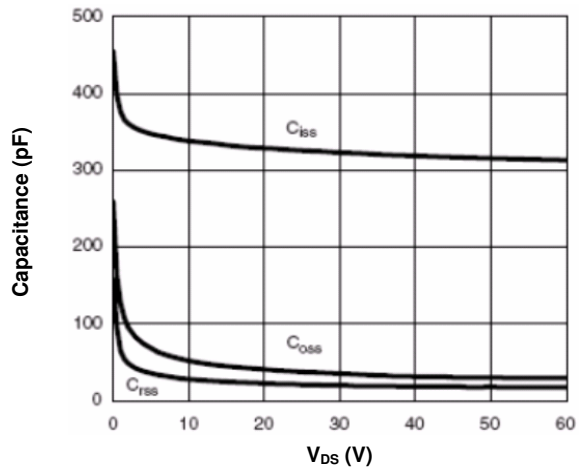


Fig 10. Typical Capacitance Characteristics

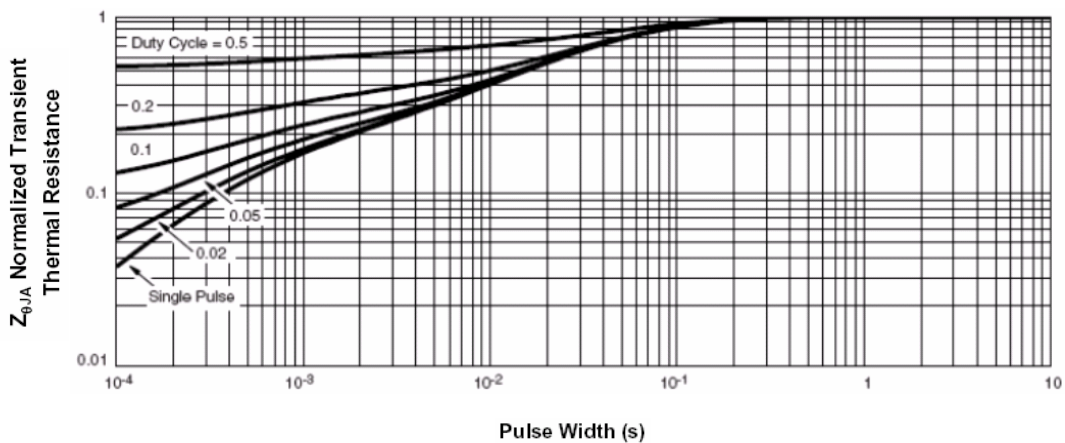
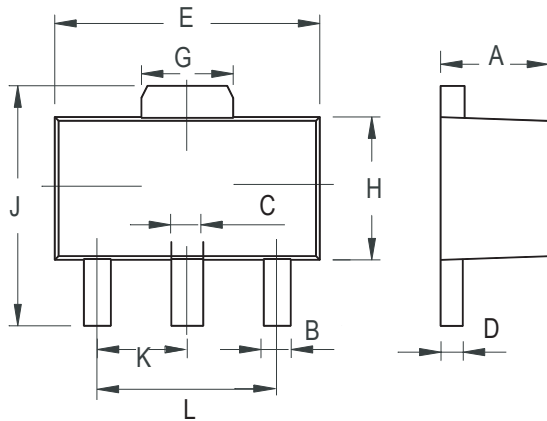


Fig 11. Normalized Maximum Transient Thermal Impedance

SOT-89 Outline Dimensions

unit:mm



SOT-89		
Dim	Min	Max
A	1.400	1.600
B	0.320	0.520
C	0.360	0.560
D	0.350	0.440
E	4.400	4.600
G	1.400	1.800
H	2.300	2.600
J	3.940	4.250
K	1.500TYP	
L	2.900	3.100