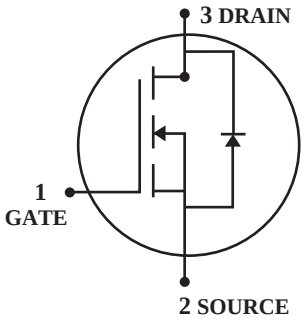
WEITRON

WTM2310A

N-Channel Enhancement Mode Power MOSFET

Lead(Pb)-Free

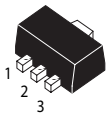


DRAIN CURRENT
5.0 AMPERES

DRAIN SOUCE 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°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	T_A=25°C T_A=70°C	I_D	5.0 4.0	A
Pulsed Drain Current		I_{DM}	10	A
Total Power Dissipation (T_A=25°C)		P_D	1.50	W
Maximum Junction-Ambient [3]		$R_{\theta JA}$	83.3	°C/W
Operating Junction Temperature Range		T_J	-55~+150	°C
Storage Temperature Range		T_{stg}	-55~+150	°C

Note 1. Pulse width limited by Max. junction temperature.
2. Pulse width ≤ 300us, duty cycle ≤ 2%.
3. Surface mounted on FR4 board, t ≤10sec.

Device Marking

WTM2310A = 2310A

Electrical Characteristics (Tj = 25℃ 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(Tj=25℃)	I_{DSS}	-	-	1	uA	V_{DS}=60V, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	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”) Change	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

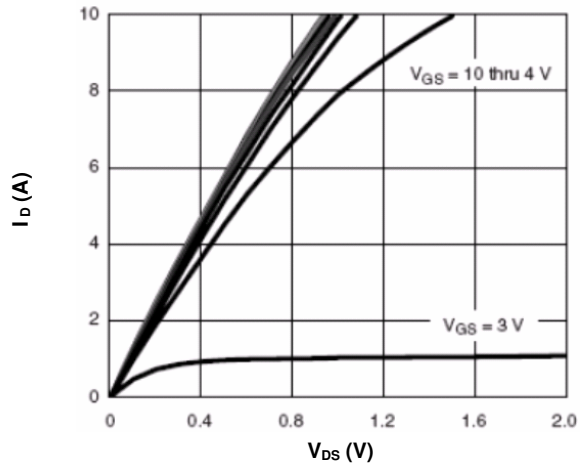


Fig 1. Typical Output Characteristics

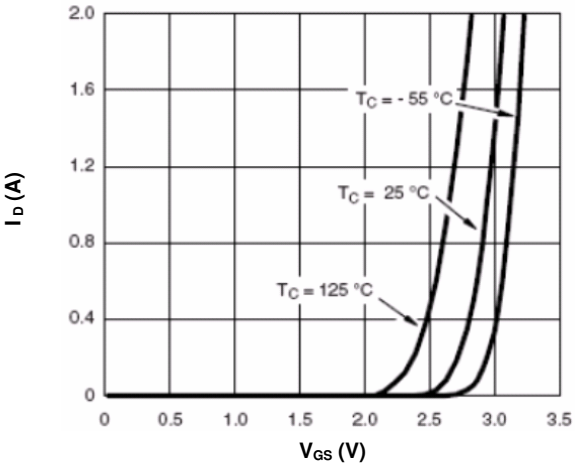


Fig 2. Transfer Characteristics

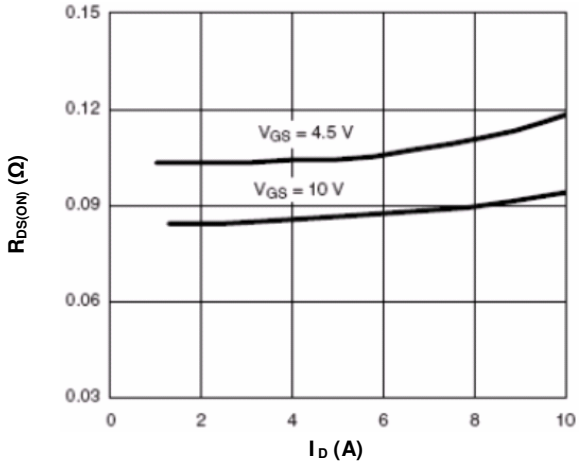


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

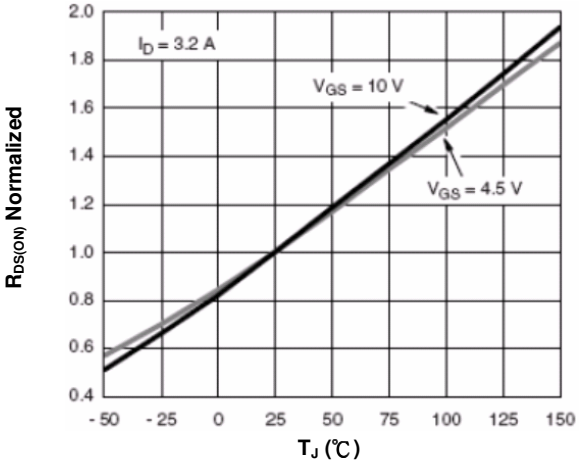


Fig 4. On-Resistance vs. Junction Temperature

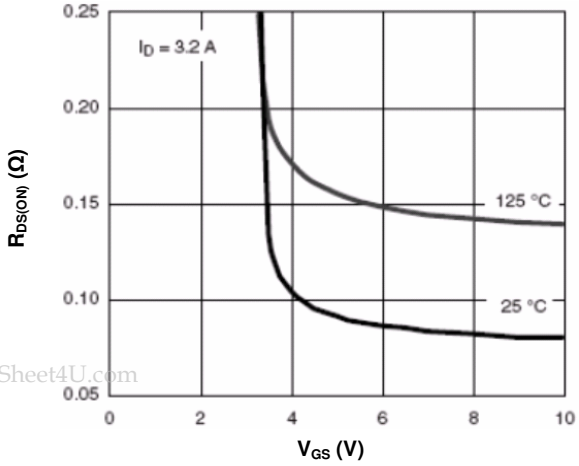


Fig 5. On-Resistance vs. Gate-Source Voltage

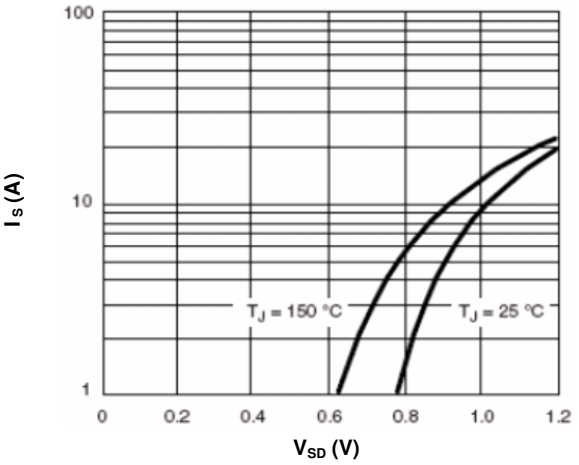


Fig 6. Body Diode Characteristics

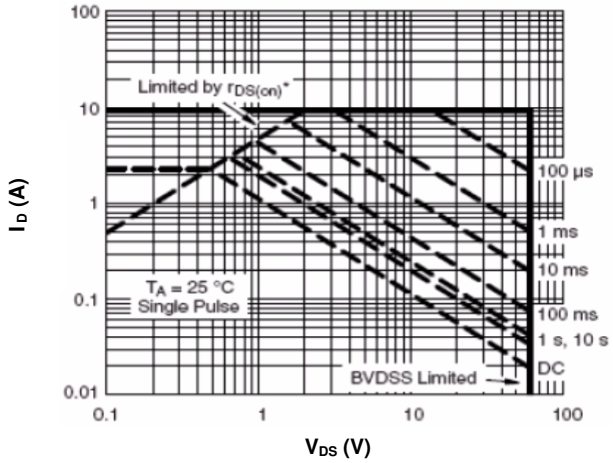


Fig 7. Maximum Safe Operating Area

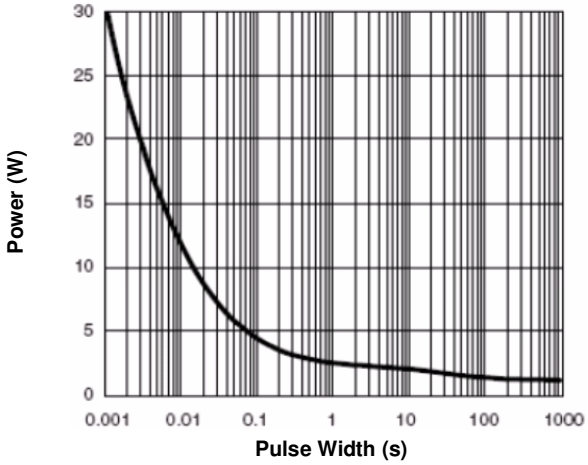


Fig 8. Single Pulse Maximum Power Dissipation

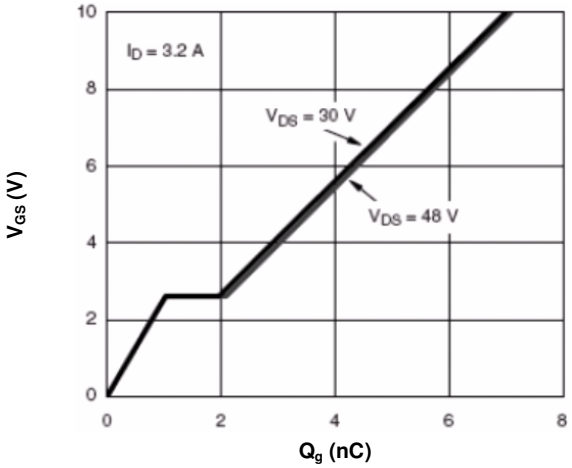


Fig 9. Gate Charge Characteristics

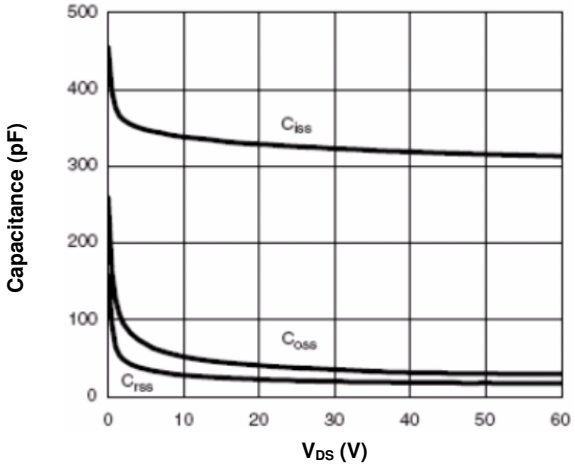


Fig 10. Typical Capacitance Characteristics

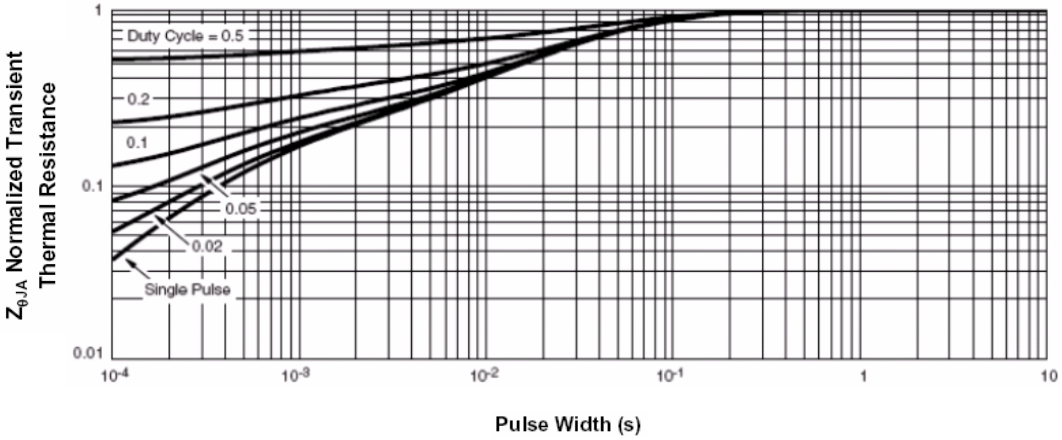
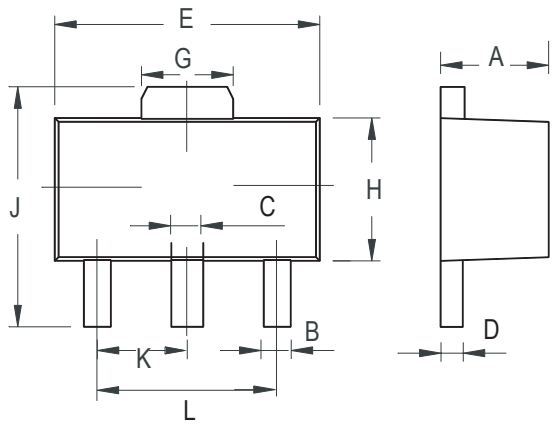


Fig 11. Normalized Maximum Transient Thermal Impedance

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