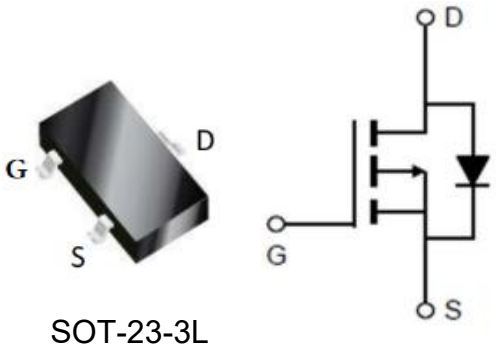
MU3002V

P-Channel Enhancement Mode MOSFET

Features

- -30V,-4A,$R_{DS(ON)}$(Typ.)=39mΩ@V_{GS} = -10V.
- This device is suitable for use as a load switch or other general applications.
- RoHS and Halogen-Free Compliant.



SOT-23-3L

Absolute Maximum Ratings T_C = 25° C unless otherwise noted

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 12	
I_D	Drain Current-Continuous, T_A =25°C	-4	A
I_{DM}	Drain Current-Pulsed[b]	-27	
P_D	Maximum Power Dissipation @ T_A =25°C	1.4	W
T_{STG}	Store Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient Max[a]	125	°C/W

Electrical Characteristics T_J = 25° C unless otherwise noted

Off Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = -250μA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =-30V, V_{GS} = 0V	-	-	-1	μA
I_{GSS}	Forward Gate Body Leakage Current	V_{DS} = 0V, V_{GS} = ±12V	-	-	±100	nA

On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D =-250μA	-0.5	-0.9	-1.3	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} =-2.5V, I_D =-2.5A	-	50	85	mΩ
		V_{GS} =-4.5V, I_D =-3.5A	-	43	60	
		V_{GS} =-10V, I_D =-4A	-	39	48	
gfs	Forward Transconductance	V_{DS}=-5V, I_D=-4A	-	19	-	S

Dynamic Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Ciss	Input Capacitance	V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz	-	753	-	pF
Coss	Output Capacitance		-	69	-	
Crss	Reverse Transfer Capacitance		-	59	-	

On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-15V, R_L=15Ω, R_G=2.5Ω, V_{GS} =-10V	-	4.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	79.5	-	
Qg	Total Gate Charge	V_{DS} =-24V, I_D=-4A, V_{GS} = -10V	-	21	-	nC

Drain-Source Diode Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	V_{GS} = 0V,I_{SD} = -4.1A	-	-0.7	-1.2	V
Is	Continuous Source Current		-	-	-1.6	A

Notes:

A: The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 1oz. Copper, in a still air environment with TA =25°C. The value in any given application depends on the user's specific board design .

B: Repetitive rating, pulse width limited by junction temperature TJ(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial TJ=25°C.

Typical Characteristics

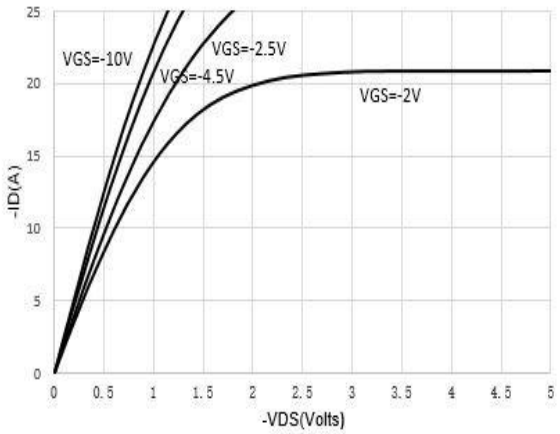


Figure 1. Output Characteristics

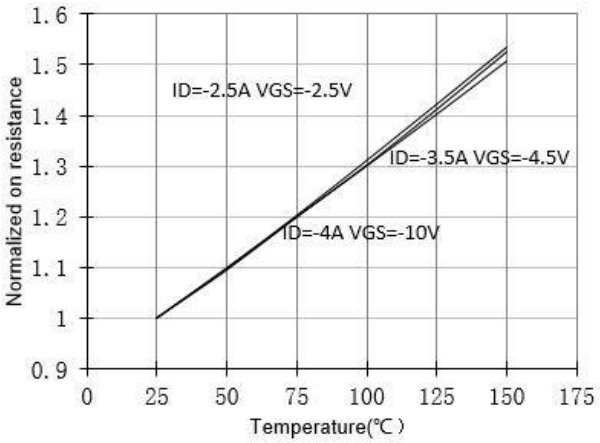


Figure2. On-Resistance vs. Junction Temperature

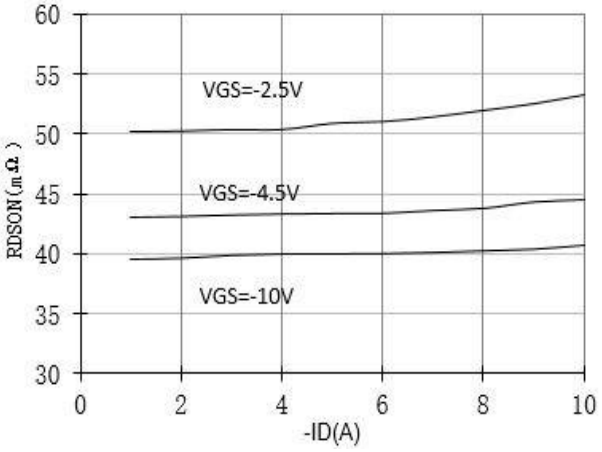


Figure 3. On-Resistance vs. Drain Current

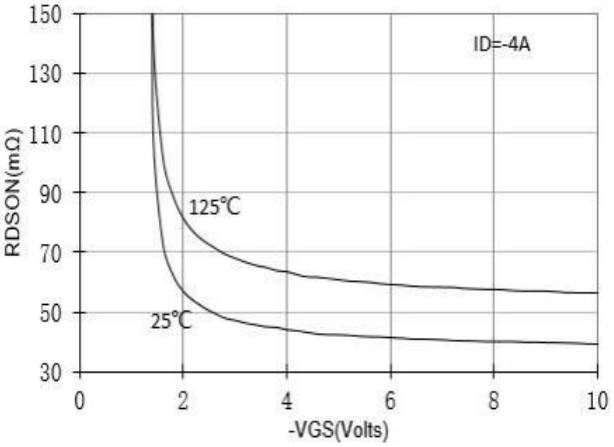


Figure 4.On-Resistance vs. Gate-Source Voltage

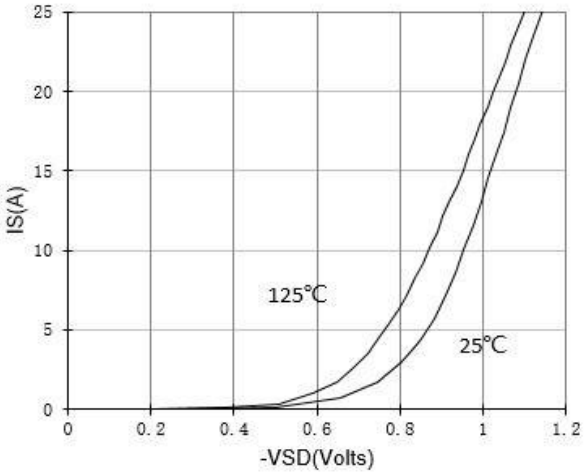


Figure 5.Body-Diode Characteristics

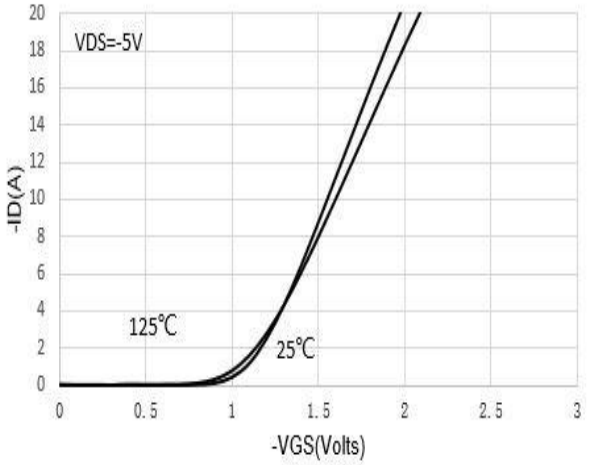


Figure 6.Transfer Characteristics

Typical Characteristics

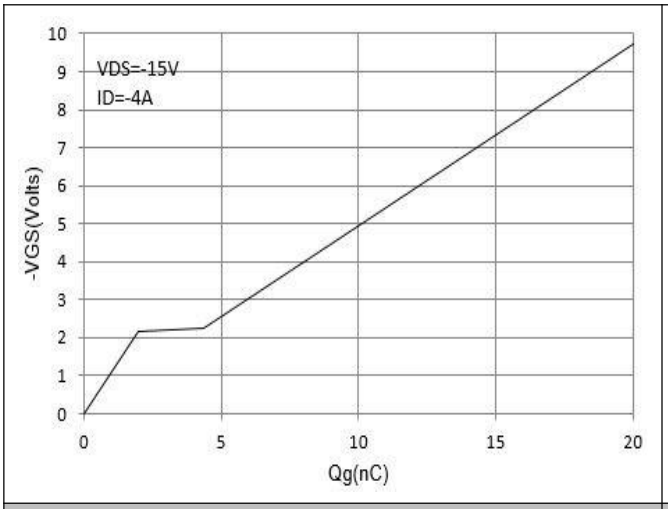


Figure 7.Charge Characteristics

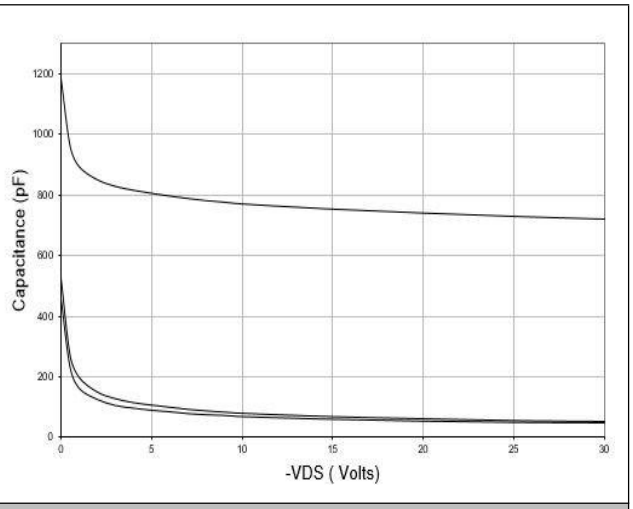


Figure 8. Capacitance Characteristics

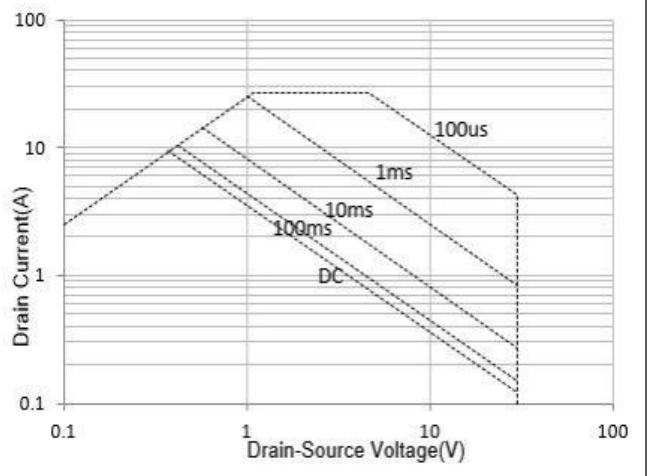


Figure 9.Maximum Forward Biased Safe Operating Area

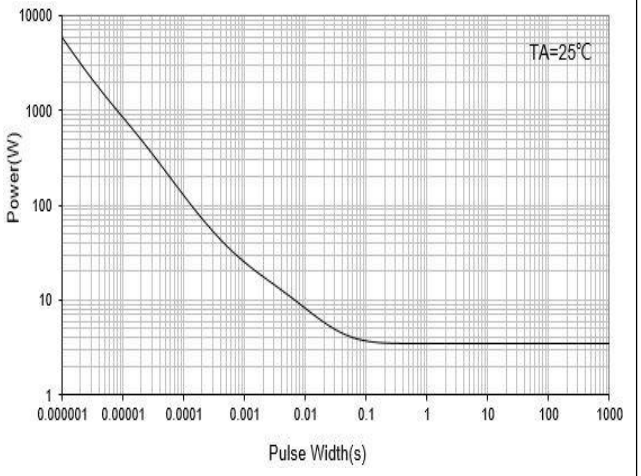


Figure 10.Single Pulse Power Rating Junction-to-Ambient

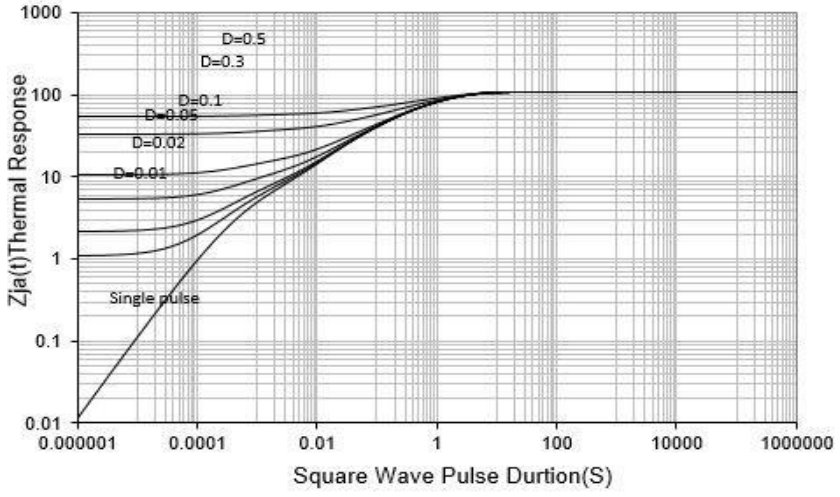
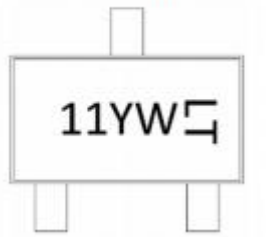


Figure 11. Normalized Maximum Transient Thermal Impedance

Marking Information

SOT23-3L



PN=11
YW= Date Code Marking
Y= Year W = Week
LT= Lot code