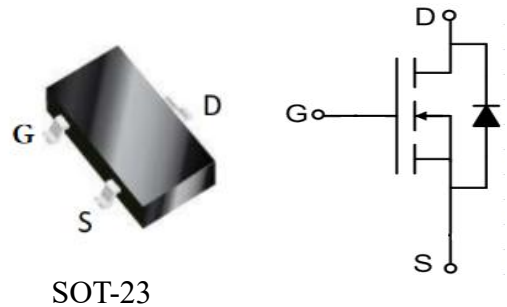


### Features

- ◆ 30V, 5.7A,  $R_{DS(ON)}(Typ.)=19m\Omega@V_{GS} = 10V$ .
- ◆ This device is suitable for use as a load switch or in PWM applications.
- ◆ RoHS and Halogen-Free Compliant.



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### Absolute Maximum Ratings $T_c = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	
$I_D$	Drain Current-Continuous, $T_A = 25^\circ\text{C}$	5.7	A
$I_{DM}$	Drain Current-Pulsed <sup>a</sup>	30	
$P_D$	Maximum Power Dissipation @ $T_A = 25^\circ\text{C}$	1.4	W
$T_{STG}$	Store Temperature Range	-55 to 150	$^\circ\text{C}$

### Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient Max <sup>c</sup>	125	$^\circ\text{C/W}$

### Electrical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise noted

#### Off Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu\text{A}$	30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 30V, V_{GS} = 0V$	-	-	1	$\mu\text{A}$
$I_{GSS}$	Forward Gate Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA



# MU3001T

## N-Channel Enhancement Mode MOSFET

### ■ On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.9	1.5	V
$R_{DS(on)}$	Static Drain-Source On-Resistance <sup>d</sup>	$V_{GS} = 2.5V, I_D = 3A$	-	24.8	47	mΩ
		$V_{GS} = 4.5V, I_D = 5A$	-	20.7	31	
		$V_{GS} = 10V, I_D = 5.7A$	-	19	26	
gfs	Forward Transconductance	$V_{DS} = 5V, I_D = 5.7A$	-	33	-	mS

### ■ Dynamic Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$C_{iss}$	Input Capacitance	$V_{DS} = 15V,$ $V_{GS} = 0V,$ $f = 1.0MHz$	-	834	-	pF
$C_{oss}$	Output Capacitance		-	64	-	
$C_{rss}$	Reverse Transfer Capacitance		-	50	-	

### ■ On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-On Delay Time	$V_{DS} = 15V, R_L = 2.6\Omega,$ $R_G = 3\Omega, V_{GS} = 10V$	-	6	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	21	-	
Qg	Total Gate Charge	$V_{DS} = 15V, I_D = 5.7A,$ $V_{GS} = 10V$	-	9.5	-	nC

### ■ Drain-Source Diode Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_{SD}$	Diode Forward Voltage	$V_{GS} = 0V, I_{SD} = 1A$	-	0.7	1	V
$I_S$	Continuous Source Current		-	-	2	A

Notes:

a: Max. current is limited by junction temperature.

b: Pulse test (pulse width ≤ 300us, duty cycle ≤ 2%).

### Typical Characteristics

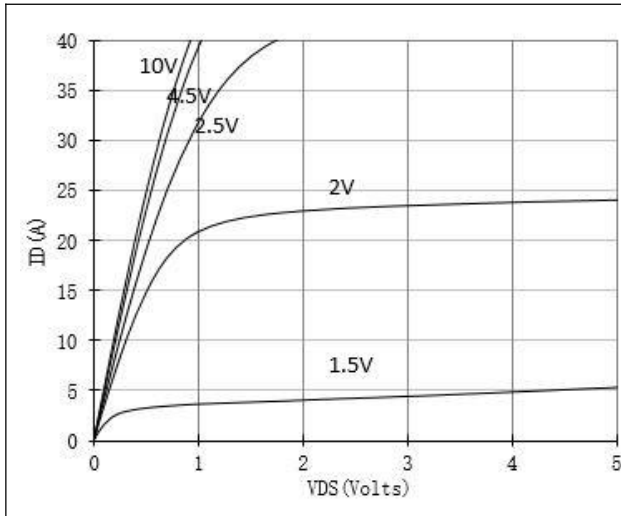


Figure 1. Output Characteristics

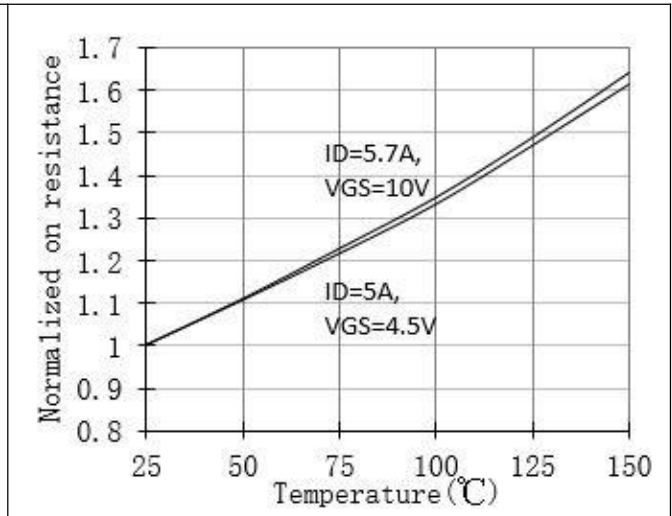


Figure 2. On-Resistance vs. Junction Temperature

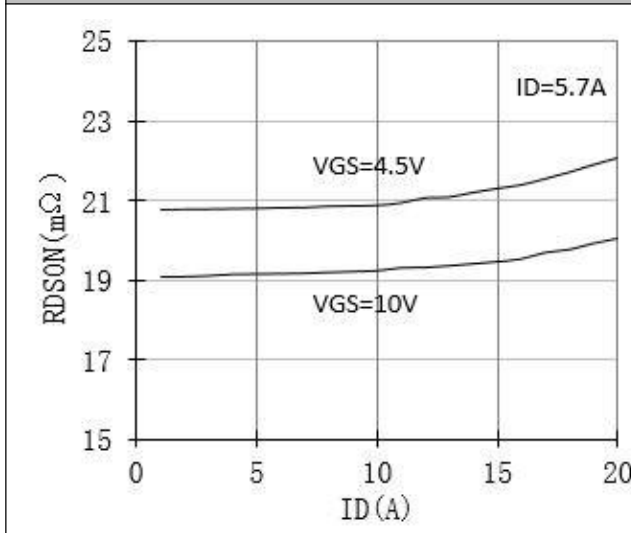


Figure 3. On-Resistance vs. Drain Current

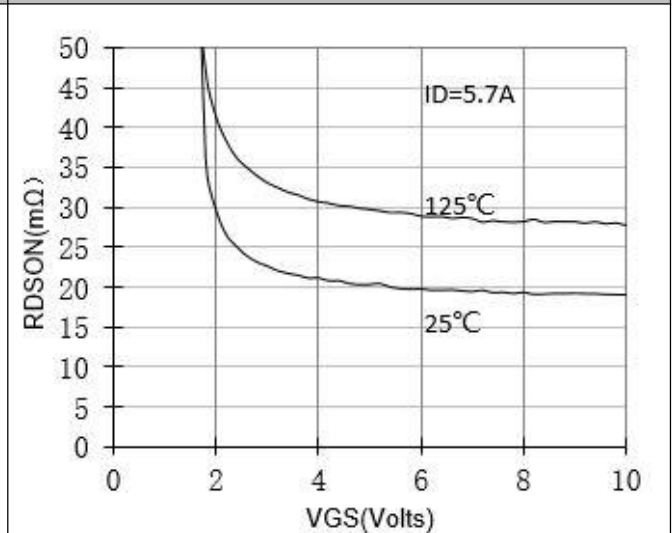


Figure 4. On-Resistance vs. Gate-Source Voltage

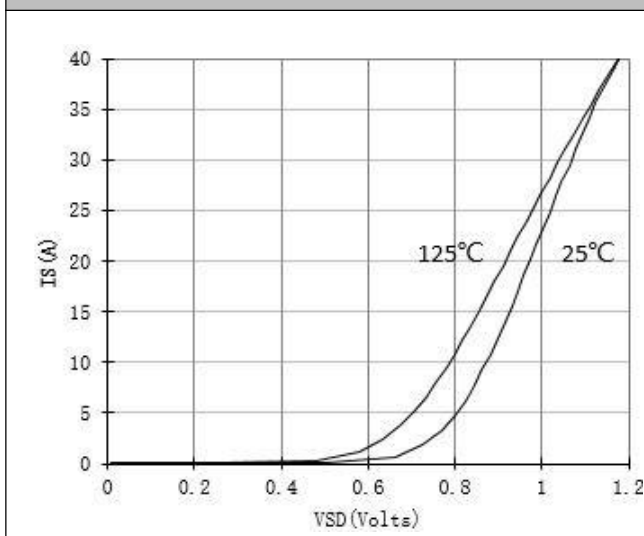


Figure 5. Body-Diode Characteristics

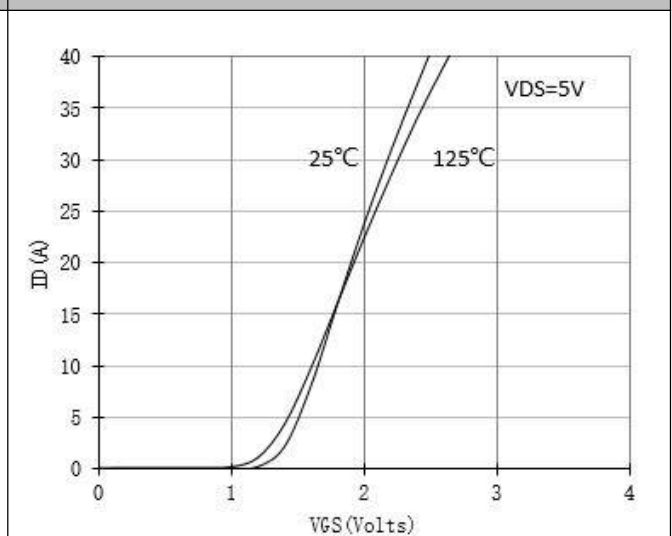


Figure 6. Transfer Characteristics

### Typical Characteristics

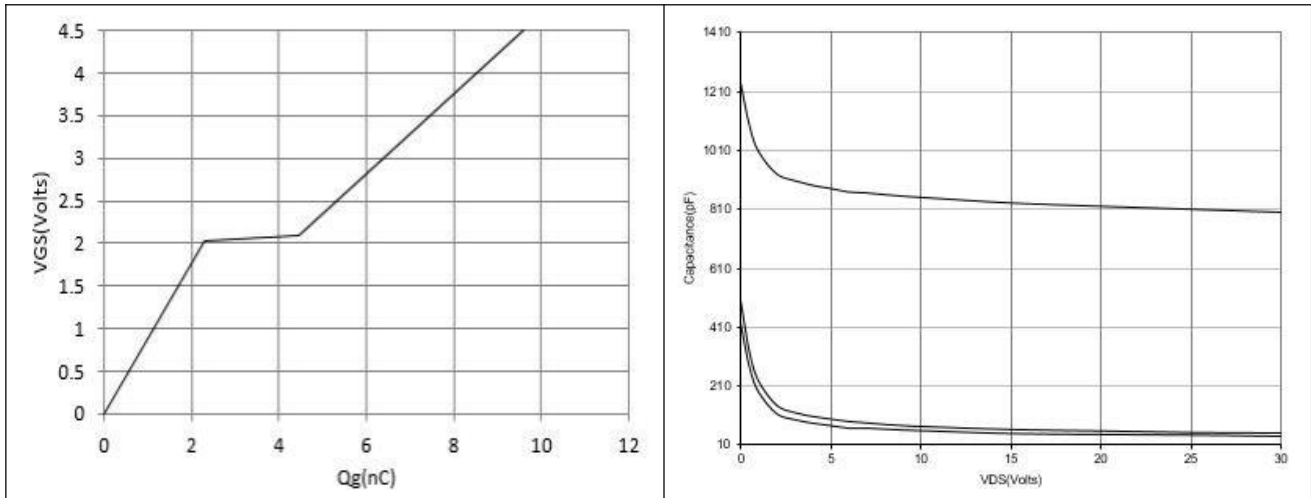


Figure 7. Charge Characteristics

Figure 8. Capacitance Characteristics

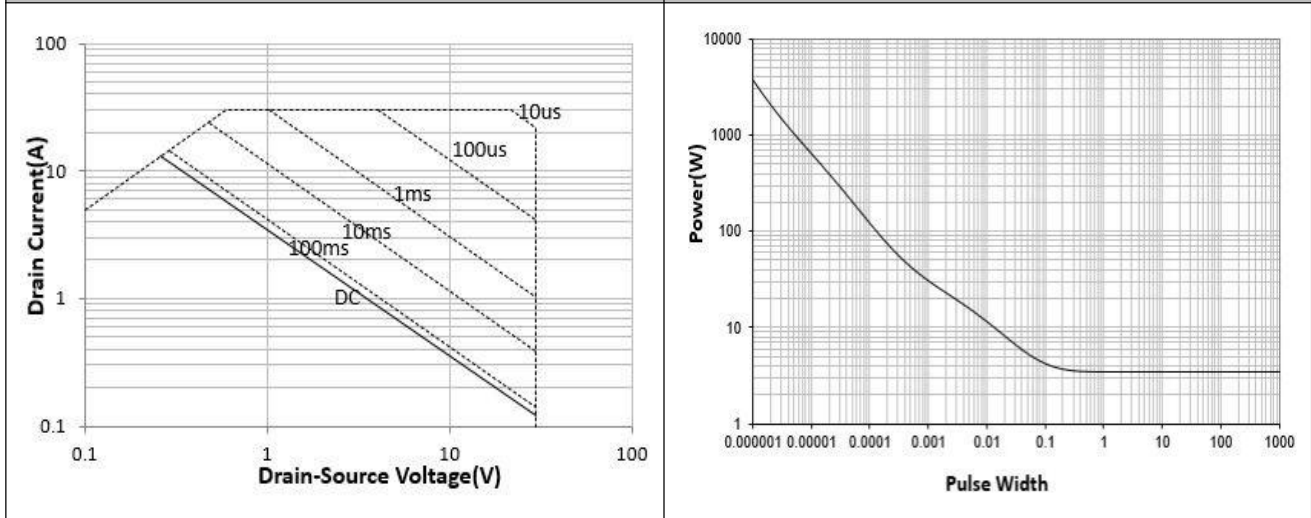


Figure 9. Maximum Forward Biased Safe Operating Area

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

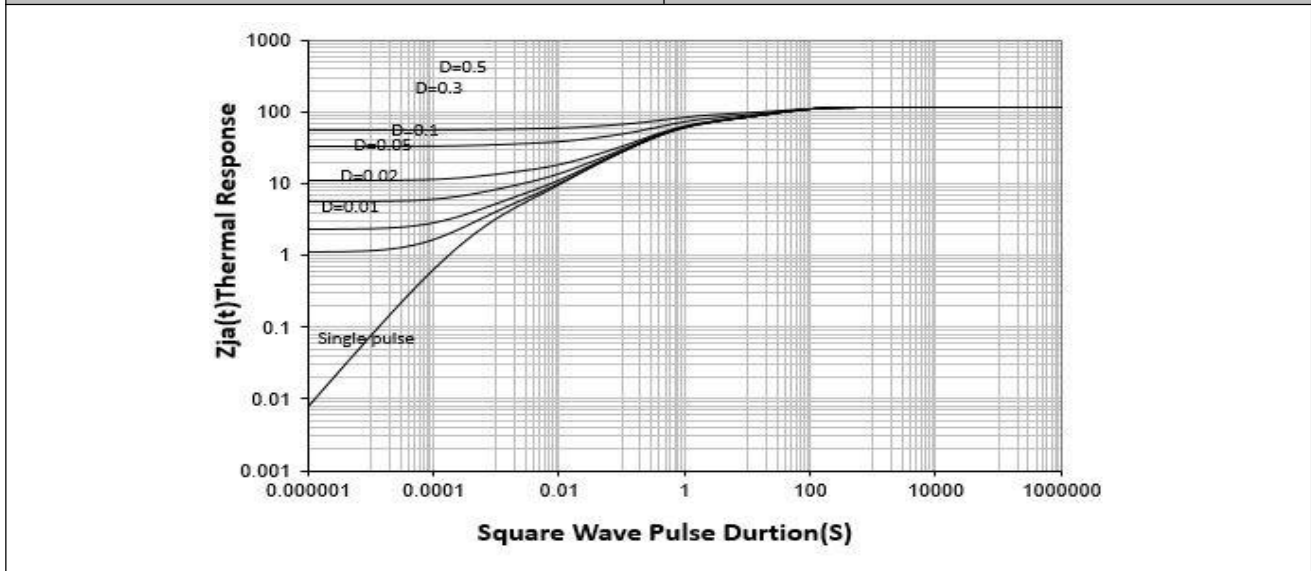
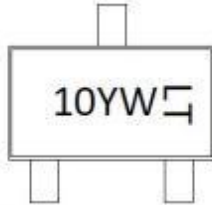


Figure 11. Normalized Maximum Transient Thermal Impedance

### Marking Information

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**NOTE:**

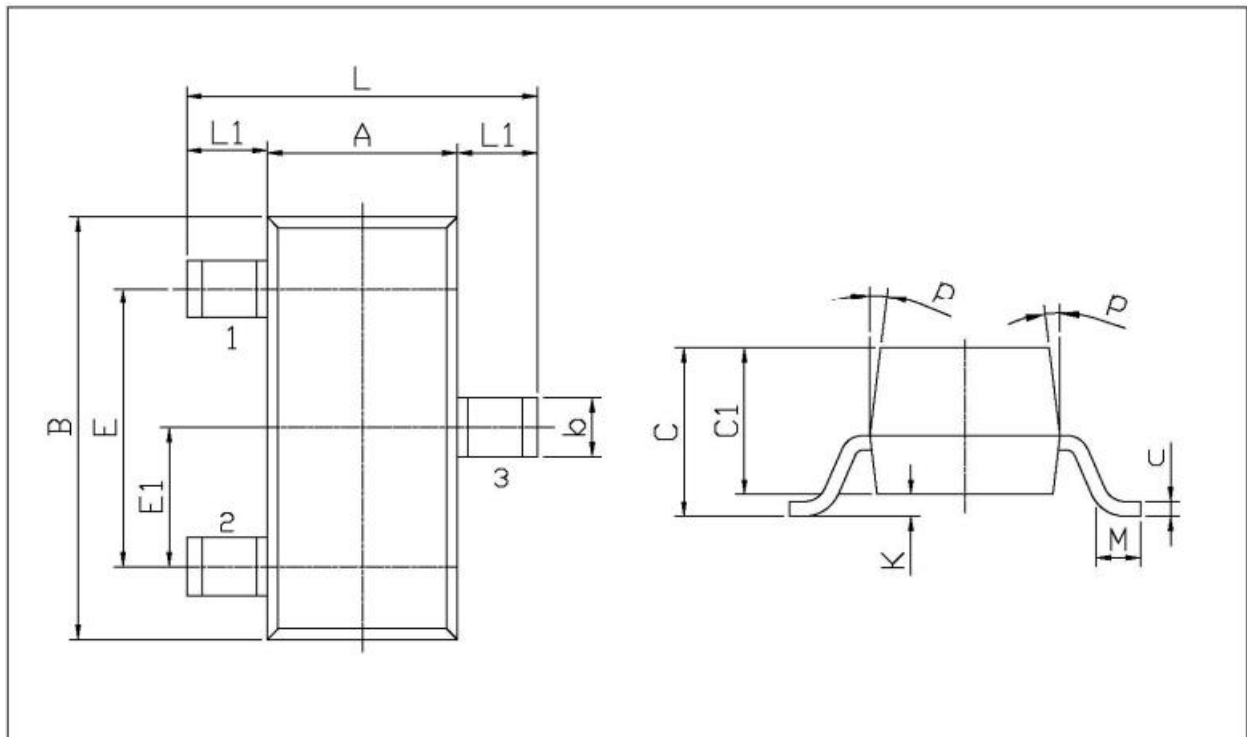
10 - Part number code

Y - Year code

W - Week code

L&T - Assembly lot code

### Package Information



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min.	Max.		Min.	Max.
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20Min	
E1	0.85	1.05	P	7°	
B	0.35	0.55			