

## N-Channel 20V (D-S) Power MOSFET

### Features

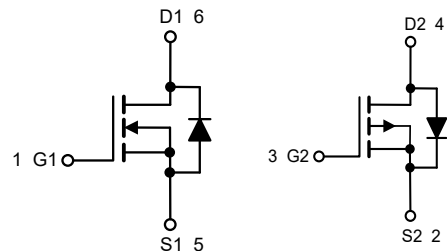
- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant



SOT23-6

### Applications

- Relay driver
- Switching circuits
- High-side load switch
- High-speed line driver



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

Parameter	Symbol	Value		Unit
		N	P	
Drain Source Voltage	$V_{DS}$	20	-20	A
Gate Source Voltage	$V_{GS}$	$\pm 8$	$\pm 8$	A
Drain Current, Continuous $V_{GS}=-10\text{V}$	$I_D$	4.9	-2.9	W
Drain Current, Pulsed (Note 1)	$I_{DM}$	18	-11.6	V
Power Dissipation	$P_D$	1.76	1.76	V
Operating Junction/ Storage Temperature Range	$T_J / T_{STG}$	-55 to +150		$^\circ\text{C}$

Note 1: Single pulse;  $t_p \leq 1\mu\text{s}$ .

### Thermal Characteristics

Parameter	Symbol	Max		Unit
		N	P	
Thermal Resistance Junction to Ambient (Note 2)	$R_{thJA}$	51	56	$^\circ\text{C/W}$

Note 2: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a  $25^\circ\text{C}$  still air environment.

Electrical Characteristics (T <sub>A</sub> =25°C unless otherwise noted)							
Parameter	Symbol		Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	V <sub>(BR)DSS</sub>	N	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20	--	--	V
		P	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-20	--	--	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	N	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	--	--	1	uA
		P	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V	--	--	-1	
Gate Threshold Voltage	V <sub>GS(TH)</sub>	N	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250uA	0.4	--	1	V
		P	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =-250uA	-0.4	--	-1	
Gate Leakage Current	I <sub>GSS</sub>	N	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V	--	--	±100	nA
		P					
Drain-Source On-state Resistance (Note 3)	R <sub>DS(on)</sub>	N	V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A	--	22	55	mΩ
		P	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3A	--	62	80	
		N	V <sub>GS</sub> =3.5V, I <sub>D</sub> =3.1A	--	23	75	
		P	V <sub>GS</sub> =-3.5V, I <sub>D</sub> =-2A	--	67	100	
Input Capacitance	C <sub>iss</sub>	N	V <sub>GS</sub> =0V, V <sub>DS</sub> =20V, f=1MHz	--	295	--	pF
Output Capacitance	C <sub>oss</sub>	N					
Reverse Transfer Capacitance	C <sub>rss</sub>	N					
Input Capacitance	C <sub>iss</sub>	P	V <sub>GS</sub> =0V, V <sub>DS</sub> =-20V, f=1MHz	--	396	--	pF
Output Capacitance	C <sub>oss</sub>	P					
Reverse Transfer Capacitance	C <sub>rss</sub>	P					

Reverse Diode Characteristics (T <sub>A</sub> =25°C unless otherwise noted)							
Parameter	Symbol		Test Conditions	Min	Typ	Max	Unit
Forward Current, Continuous	I <sub>SD</sub>	N	T <sub>C</sub> =25°C	--	--	4.9	A
		P				-2.9	
Diode Forward Voltage (Note 3)	V <sub>SD</sub>	N	I <sub>F</sub> =0.94A, V <sub>GS</sub> =0V	--	--	1.2	V
		P	I <sub>F</sub> =-0.75A, V <sub>GS</sub> =0V			-1.2	

Note 3: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

## Typical Characteristics Curves (T<sub>A</sub> = 25°C unless otherwise noted)

Fig.1 - Output Characteristics(N)

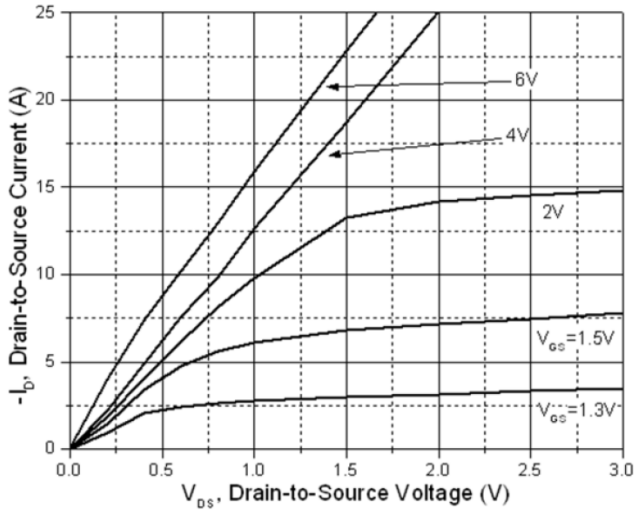


Fig.2 - Output Characteristics(P)

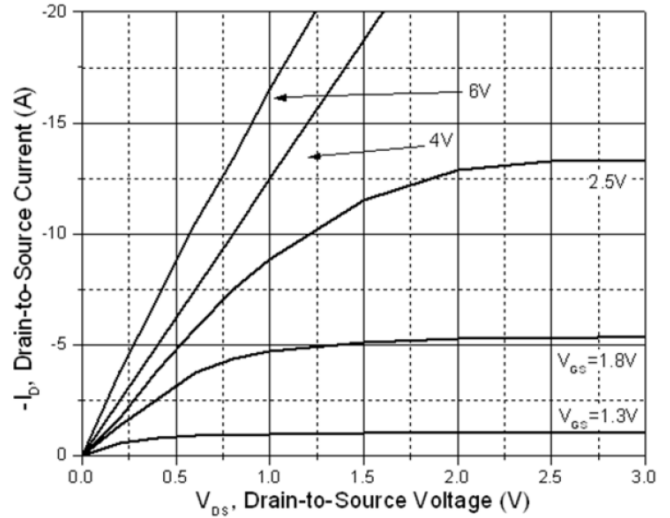


Fig.3 - Capacitance(N)

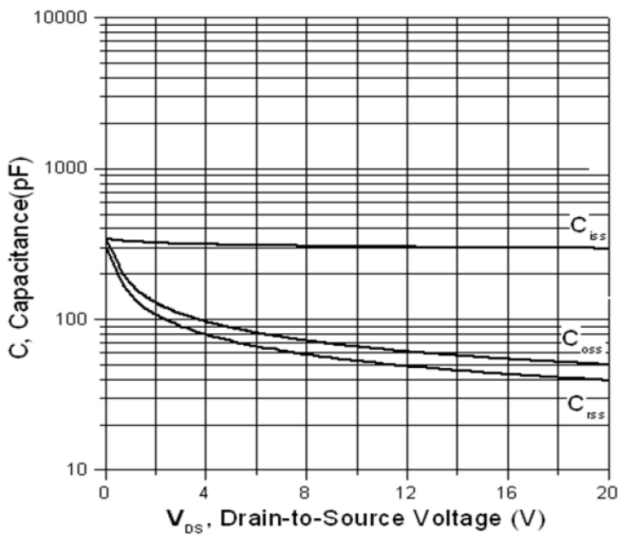
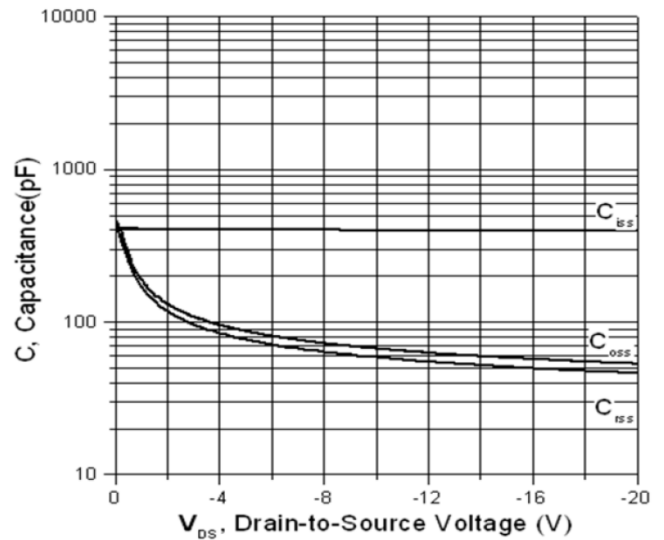
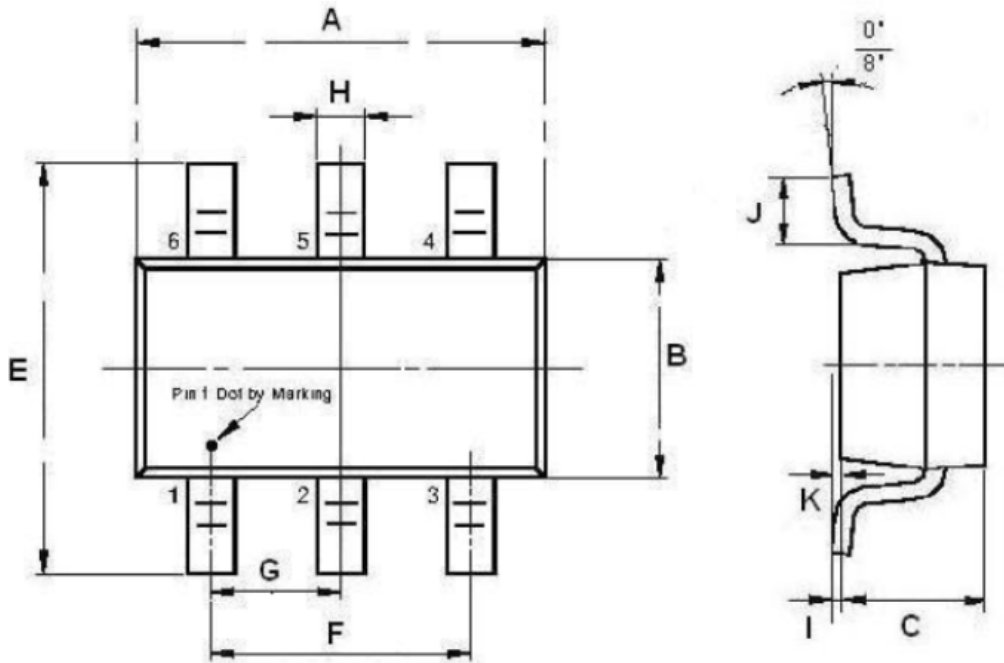


Fig.4 - Capacitance(P)



**Package Outline Dimensions** (Unit: millimeters)

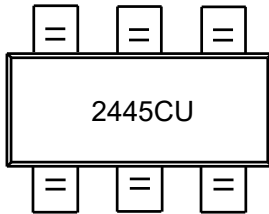
**SOT23-6**



单位: mm

A	$2.92 \pm 0.1$	G	$0.95 \pm 0.1$
B	$1.60 \pm 0.1$	H	$0.40 + 0.1 / -0.05$
C	$1.10 \pm 0.2$	I	$0.15 \pm 0.05$
E	$2.80 \pm 0.2$	J	$0.45 \pm 0.1$
F	$1.90 \pm 0.1$	K	$0 \sim 0.15$

## Marking Outline



Part Name: GMN2445CU

1. P/N Mark: 2445CU

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