

# 50V N-Channel MOSFETS

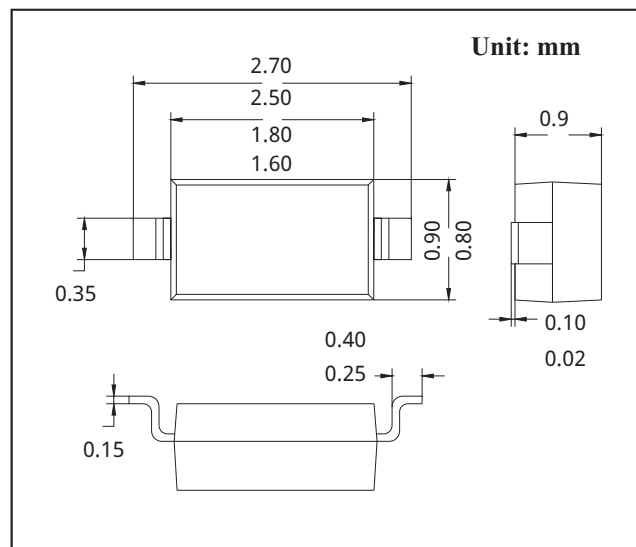
## SOT-323 Plastic-Encapsulate MOSFETS

### FEATURES

- High density cell design for extremely low RDS(on).
- Rugged and Reliable.
- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- Solid-State Relays Battery Operated Systems

### MECHANICAL DATA

- SOT-323 Small Outline Plastic Package.
- Epoxy UL: 94V-0.



### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

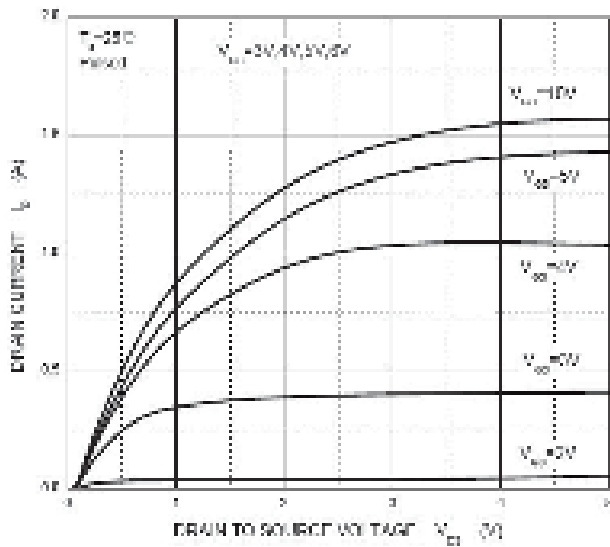
Parameters	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	50	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	0.22	A
Power Dissipation	P <sub>D</sub>	300	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-50-+150	°C
Thermal Resistance From Junction to Ambient	R <sub>θJA</sub>	417	°C/W

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Drain-Source Breakdown Voltage	V(BR)DSS	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	50			V
Gate-Threshold voltage(note1)	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1mA	0.8		1.5	V
Gate-body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Zero Gate Voltage Drain current	I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V			0.5	uA
		V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			0.1	
Drain-Source On-Resistance (note1)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.22A			3.5	Ω
		V <sub>GS</sub> =4.5V, I <sub>C</sub> =0.22A			6	
Forward trans conductance (note1)	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =0.22A	0.12			S
Diode forward voltage(note1)	V <sub>SD</sub>	I <sub>S</sub> =0.44A, V <sub>GS</sub> =0V			1.4	V
<b>Dynamic(note2)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz		27		pF
Output capacitance	C <sub>oss</sub>			13		
Reverse Transfer capacitance	C <sub>rss</sub>			6		
<b>Switching(note1,2)</b>						
Turn-on Time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, R <sub>GEN</sub> =6Ω, V <sub>GS</sub> =10V, I <sub>D</sub> =0.29A,			5	ns
Rise time	t <sub>r</sub>				18	
Turn-off Time	t <sub>d(off)</sub>				36	
Fall time	t <sub>f</sub>				14	

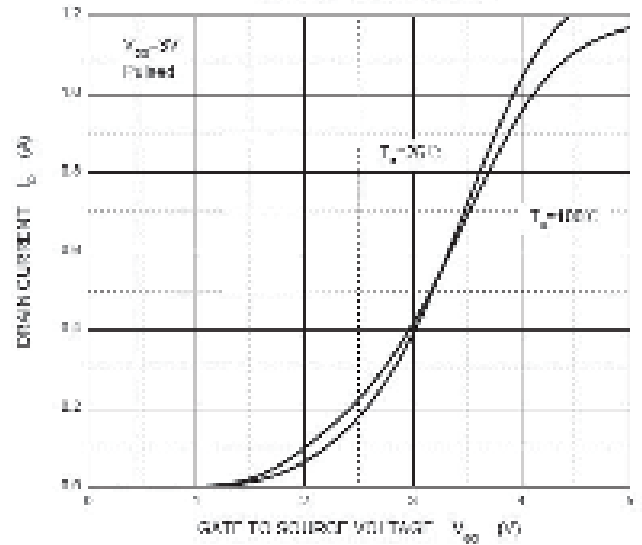
Notes: 1. Pulse Test: Pulse Width ≤300us, Duty Cycles≤2%.

## RATINGS AND CHARACTERISTIC CURVES

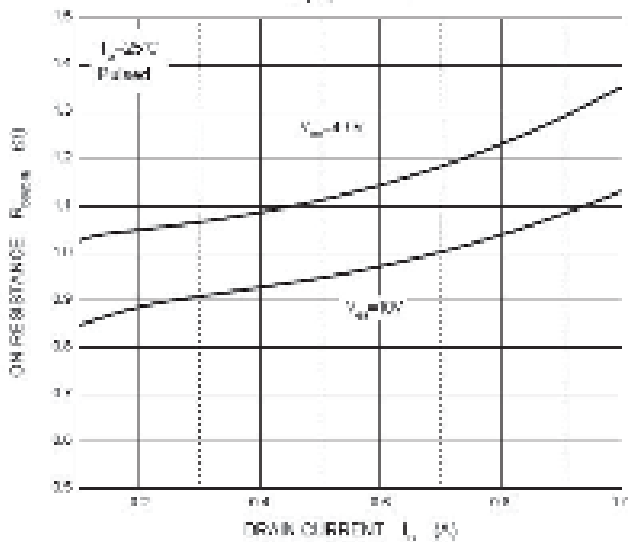
Output Characteristics



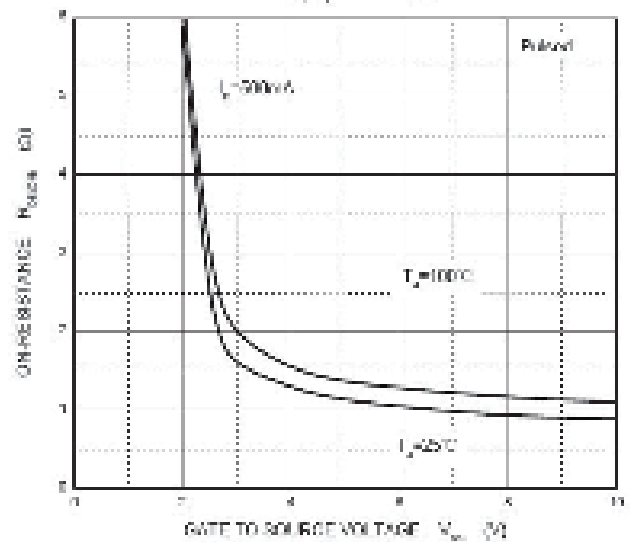
Transfer Characteristics



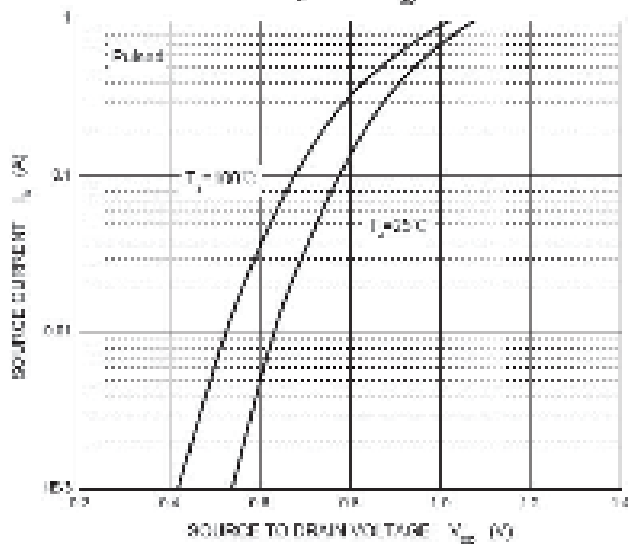
$R_{DS(on)} - I_D$



$R_{DS(on)} - V_{GS}$



$I_S - V_{SD}$



Threshold Voltage

