

## P-Channel Enhancement Mode MOSFET

- **Features**

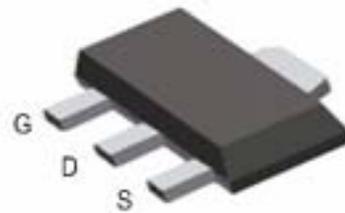
VDS	VGS	RDSon TYP	ID
-30V	±20V	52mR@-10V	-4.2A
		68mR@-4V5	

- **Applications**

- Load Switch
- DCDC conversion
- TFT panel power switch

- **Pin configuration**

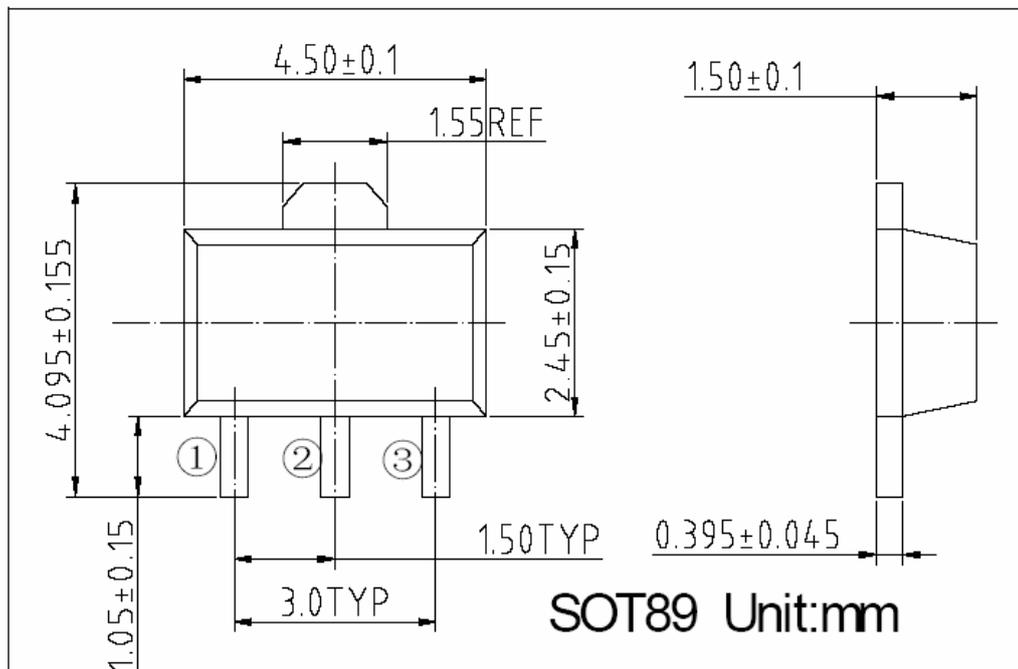
Top View



- **General Description**

This device is produced with high cell density, DMOS trench technology, which is especially used to minimize on-state resistance. This device is particularly suited for low voltage application such as portable equipment, power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

- **Package Information**



● **Absolute Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise noted

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		$V_{DSS}$	-30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current (Note 1)	Continuous $T_A=25^\circ\text{C}$	$I_D$	-4.2	A
	Pulsed (Note 2)		-16	A
Total Power Dissipation (Note 1)		$P_D$	1	W
Operating and Storage Junction Temperature Range		$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

● **Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{ A}$	-30	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$	--	-3	-200	nA
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	--	$\pm 1.5$	$\pm 50$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{ A}$	-1	-1.3	-3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -10\text{ V}, I_D = -4.2\text{ A}$	--	52	60	mR
		$V_{GS} = -4.5\text{ V}, I_D = -2\text{ A}$	--	68	82	
Forward Transconductance	$G_{FS}$	$V_{DS} = -5\text{ V}, I_D = -6\text{ A}$	--	12	--	S
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS} = -15\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$	--	550	--	pF
Output Capacitance	$C_{OSS}$		--	60	--	
Reverse Transfer Capacitance	$C_{RSS}$		--	50	--	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$T_{D(ON)}$	$V_{DS} = -15\text{ V}, R_L = 2.5R,$	--	8.6	--	nS
Turn-Off Delay Time	$T_{D(OFF)}$	$V_{GS} = -10\text{ V}, R_{GEN} = 3R$	--	28.2	--	
<b>DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0\text{ V}, I_S = -1\text{ A}$	--	-0.81	--	V

Note: 1. The value of  $P_D$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ . The value in any given application depends on the user's specific board design. The current rating is based on the DC thermal resistance rating.

2. Repetitive rating, pulse width limited by junction temperature.

● Typical Performance Characteristics

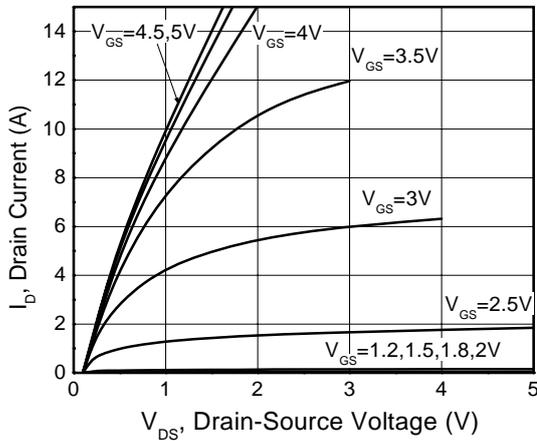


Figure 1. Output Characteristics

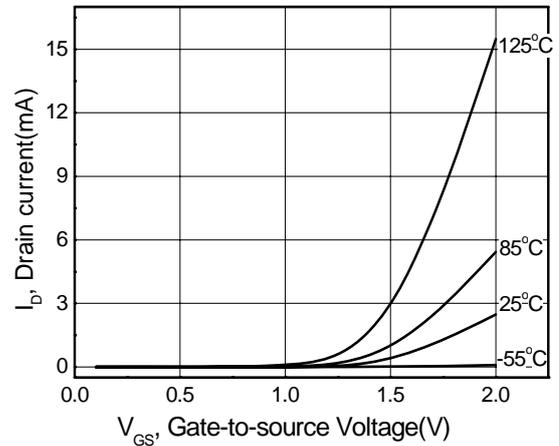


Figure 2. Transfer Characteristics

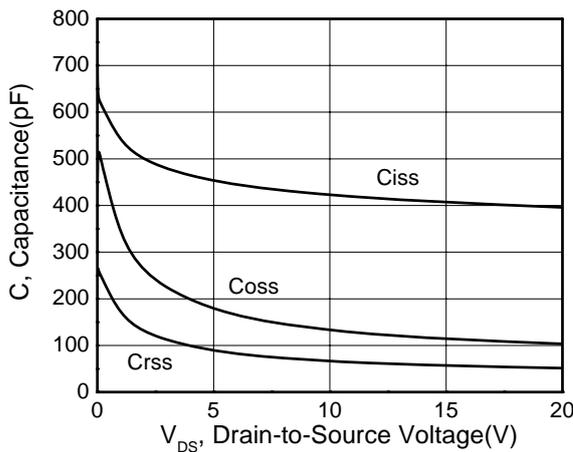


Figure 3. Capacitance

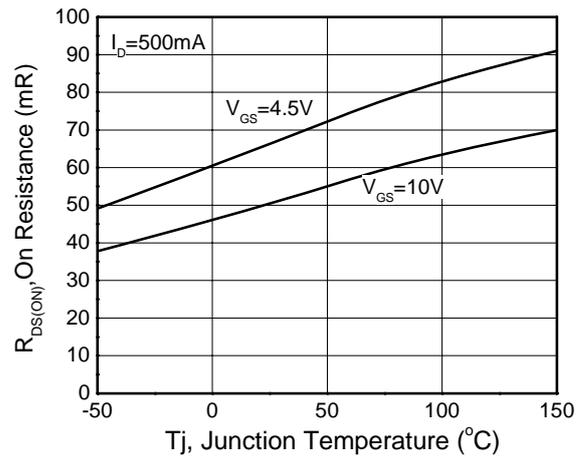


Figure 4. On Resistance Vs. Temperature

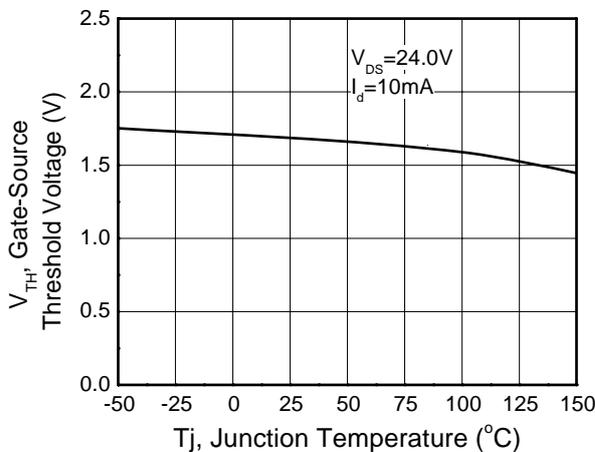


Figure 5. Gate Threshold Vs. Temperature

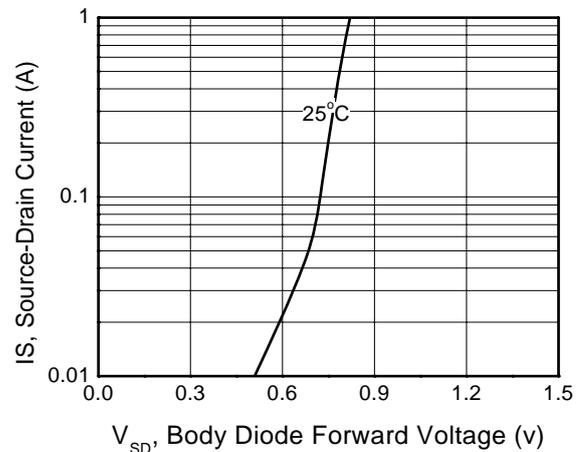


Figure 6. Body Diode Forward Voltage

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