

N-Channel Enhancement Mode MOSFET

- **Features**

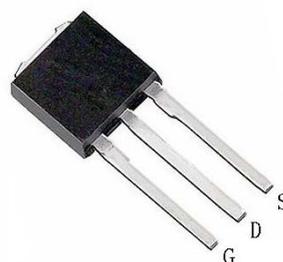
VDS	VGS	RDSon TYP	ID
20V	±8V	10mR@4V5 12mR@2V5 16mR@1V8	20A

- **Applications**

- Load Switch
- Portable Devices
- DCDC Conversion

- **Pin Configuration**

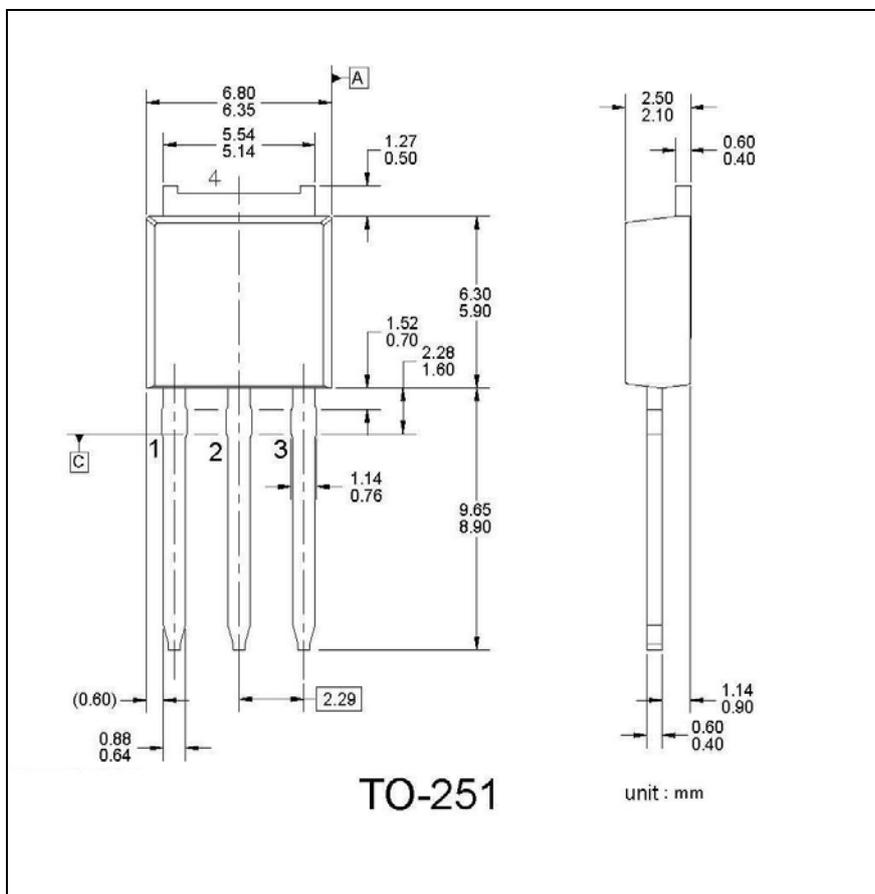
Top View



- **General Description**

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

- **Package Information**





SSC8424GT3

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	± 8	V
Drain Current	Continuous	I_D	20	A
	Pulsed		50	
Power Dissipation ⁽¹⁾		P_D	25	W
Operating and Storage Junction Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

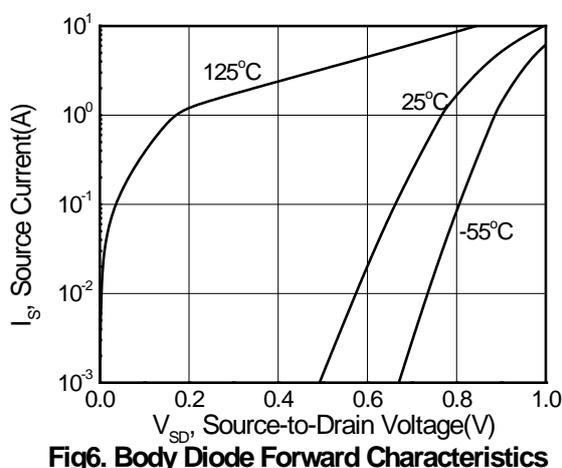
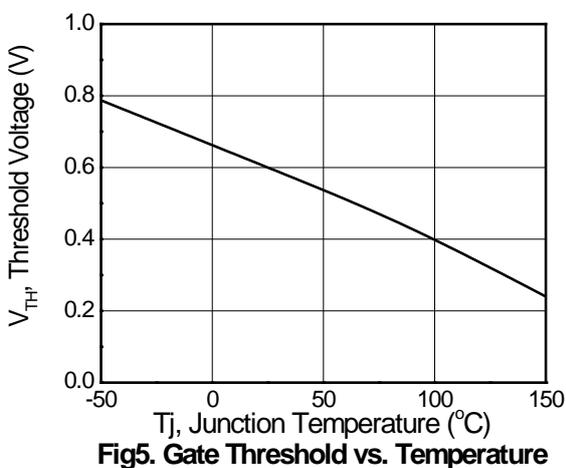
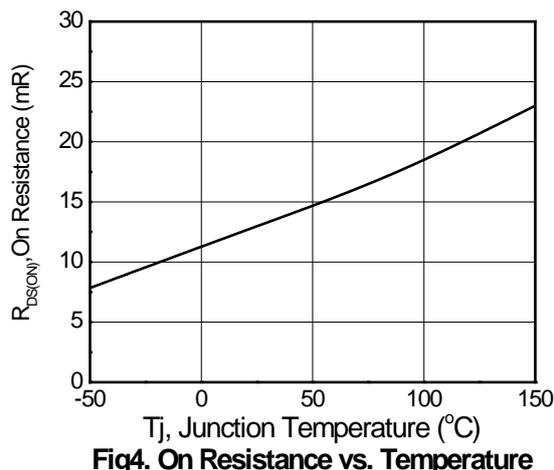
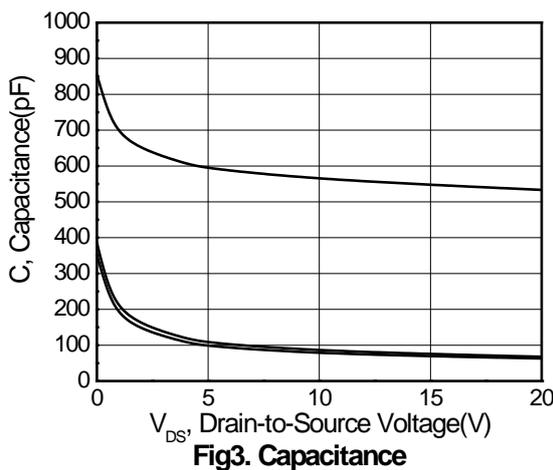
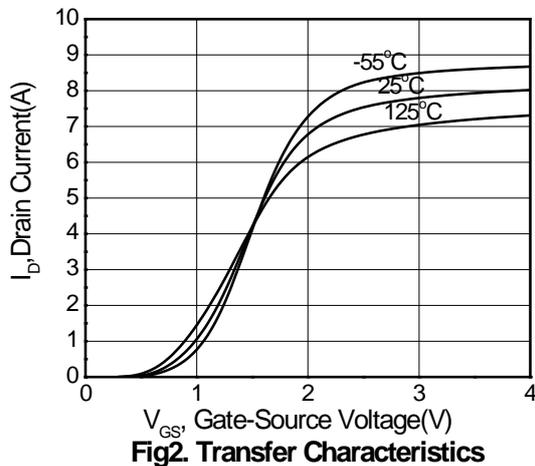
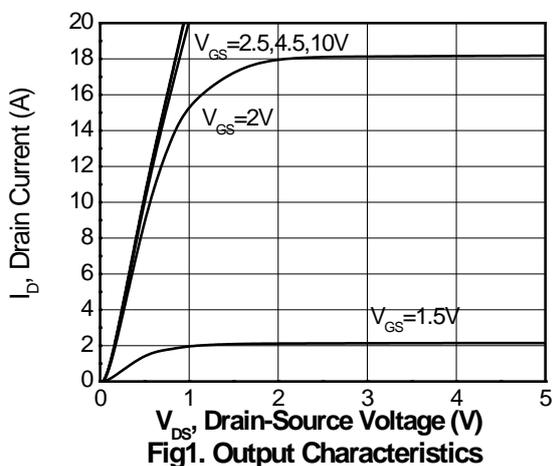
● **Electrical Characteristics** @ $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$	20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20\text{ V}, V_{GS} = 0\text{ V}$	--	--	1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 8\text{ V}, V_{DS} = 0\text{ V}$	--	--	± 100	nA
ON CHARACTERISTICS⁽²⁾						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 50\mu\text{A}$	0.4	0.6	0.85	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 4.5\text{ V}, I_D = 5\text{ A}$	--	10	11	mR
		$V_{GS} = 2.5\text{ V}, I_D = 3.5\text{ A}$	--	12	15	
		$V_{GS} = 1.8\text{ V}, I_D = 2.8\text{ A}$	--	16	20	
Forward Transconductance	G_{FS}	$V_{DS} = 5\text{ V}, I_D = 3.6\text{ A}$	2	7	14	S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS} = 10\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$	--	925	--	pF
Output Capacitance	C_{OSS}		--	160	--	
Reverse Transfer Capacitance	C_{RSS}		--	100	--	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$T_{D(ON)}$	$V_{DD} = 5\text{ V}, I_D = 3.6\text{ A},$ $V_{GS} = 4.5\text{ V}, R_{GEN} = 6\text{ R}$	--	--	15	nS
Turn-On Rise Time	T_R		--	--	80	
Turn-Off Delay Time	$T_{D(OFF)}$		--	--	60	
Turn-Off Fall Time	T_F		--	--	25	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage ⁽²⁾	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 1.1\text{ A}$	0.6	0.8	1.15	V

Notes :

- Surface Mounted on FR4 Board, $t < 10\text{ sec.}$
Pulse Test: Pulse Width $< 300\mu\text{s}$, Duty Cycle $< 2\%$
-

● **Typical Performance Characteristics**





SSC8424GT3

DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G., OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.