GREEN LINE™

Preliminary Information

MGSF3442V

Motorola Preffered Device

Low rDS(on) Small-Signal MOSFETs

TMOS Single N-Channel Field Effect Transistors

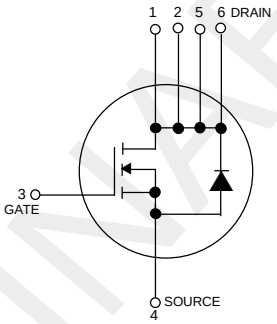
N-CHANNEL
ENHANCEMENT-MODE
TMOS MOSFET

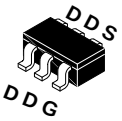
$r_{DS(0N)}$ =58mΩ (TYP)

Part of the GreenLine™ Portfolio of devices with energy-conserving traits.

These miniature surface mount MOSFETs utilize Motorola's High Cell Density, HDTMOS process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in small power management circuitry. Typical applications are dc-dc converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Miniature TSOP 6 Surface Mount Package Saves Board Space
- Visit our web site at http://www.mot-sps.com/ospd





CASE 318G-01, STYLE 1
TSOP 6 PLASTIC

2.5V RATED

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	20	Vdc
Gate-to-Source Voltage -- Continuous	V_{GS}	±8	Vdc
Drain Current -- Continuous @ T_A = 25°C -- Pulsed Drain Currrent ($t_p \leq 10\mu s$)	I_D I_{DM}	4.0 20	A
Total Power Dissipation @ T_A = 25°C Mounted on FR4 t ≤ 5 sec	P_D	2.0	W
Operating and Storage Temperature Range	T_J, Tstg	-55 to 150	°C
Thermal Resistance -- Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	°C

ORDERING INFORMATION

Device	Reel Size	Tape Width	Quantity
MGSF3442VLT1	7"	8mm Embosed tape	3000
MGSF3442VLT3	13"	8mm embossed tape	10,000

GreenLine is a trademark of Motorola, Inc.
HDTMOS is a trademark of Motorola, Inc. TMOS is a registered trademark of Motorola, Inc.
Thermal Clad is a trademark of the Bergquist Company.

Preferred devices are Motorola recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless other noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage (V_{GS} = 0 Vdc, I_D = 10μA)		$V_{(BR)DSS}$	20	-	-	Vdc
Zero Gate Voltage Drain Current		I_{DSS}				μAdc
(V_{DS} = 20 Vdc, V_{GS} = 0 Vdc)			–	–	1.0	
(V_{DS} = 20 Vdc, V_{GS} = 0 Vdc, T_J = 70°C)			–	–	5	
Gate-Body Leakage Current (V_{GS} = ±8 Vdc, V_{DS} = 0)		I_{GSS}	–	--	±100	nAdc
ON CHARACTERISTICS(1)						
Gate Threaded Voltage (V_{DS} = V_{GS}, I_D = 250 μAdc)		$V_{GS(th)}$	0.6	–	--	Vdc
Static Drain-to-Source On-Resistance		$r_{DS(on)}$				Ohms
(V_{GS} = 4.5 Vdc, I_D =4.0 A)			--	0.058	0.070	
(V_{GS} = 2.5 Vdc, I_D =3.4 A)			--	0.072	0.095	
DYNAMIC CHARACTERISTICS						
Input Capacitance	(V_{DS} = 5.0 V)	C_{ISS}	–	90	–	pF
Output Capacitance	(V_{DS} = 5.0V)	C_{OSS}	–	50	–	
Transfer Capacitance	(V_{DG} = 5.0V)	C_{rss}	–	10	–	
SWITCHING CHARACTERISTICS (2)						
Turn-On Delay Time	(V_{DD} = 10 Vdc, I_D = 1.0 A, V_{GEN} = 10V R_L = 10Ω)	$t_{d(on)}$	–	8	20	ns
Rise Time		t_r	--	24	40	
Turn-Off Delay Time		$t_{d(off)}$	--	36	60	
Fall Time		t_f	--	10	20	
Gate Charge		Q_T	--	–	–	nC
SOURCE-DRAIN DIODE CHARACTERISTICS						
Continuous Current		I_S	–	–	1.0	A
Pulsed Current		I_{SM}	–	–	5.0	A
Forward Voltage(2)		V_{SD}	–	–	1.2	V

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty cycle ≤ 2%.

(2) Switching characteristics are independent of operating junction temperature.