



Preliminary Information

MGSF3455V

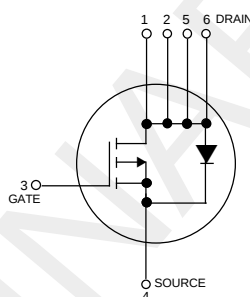
Motorola Preferred Device

Low $r_{DS(on)}$ Small-Signal MOSFETs TMOS Single P-Channel Field Effect Transistors

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

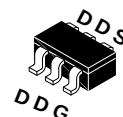
These miniature surface mount MOSFETs utilize Motorola's High Cell Density, HDTMOS process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in small power management circuitry. Typical applications are dc-dc converters, power management in portable and 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>



P-CHANNEL
ENHANCEMENT-MODE
TMOS MOSFET

$r_{DS(ON)} = 80 \text{ m}\Omega$ (TYP)



CASE 318G-01, STYLE 1
TSOP 6 PLASTIC

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	30	Vdc
Gate-to-Source Voltage -- Continuous	V_{GS}	± 20	Vdc
Drain Current -- Continuous @ $T_A = 25^\circ\text{C}$ -- Pulsed Drain Current ($t_p \leq 10\mu\text{s}$)	I_D I_{DM}	3.5 20	A
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Mounted on FR4 $t \leq 5 \text{ sec}$	P_D	2.0	W
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal Resistance -- Junction-to-Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$

ORDERING INFORMATION

Device	Reel Size	Tape Width	Quantity
MGSF3455VT1	7"	8mm Embossed tape	3000
MGSF3455VT3	13"	8mm embossed tape	10,000

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HDTMOS is a trademark of Motorola, Inc. TMOS is a registered trademark of Motorola, Inc.

Thermal Clad is a trademark of the Bergquist Company.

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

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

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MGSF3455V

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage (V _{GS} = 0 Vdc, I _D = 10μA)	V _{(BR)DSS}	30	–	–	Vdc
Zero Gate Voltage Drain Current (V _{DS} = 30 Vdc, V _{GS} = 0 Vdc) (V _{DS} = 30 Vdc, V _{GS} = 0 Vdc T _J = 70°C)	I _{DSS}	–	–	1.0 5	μAdc
Gate-Body Leakage Current (V _{GS} = ±20 Vdc, V _{DS} = 0)	I _{GSS}	–	--	±100	nAdc

ON CHARACTERISTICS⁽¹⁾

Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 250 μAdc)	V _{GS(th)}	1.0			Vdc
Static Drain-to-Source On-Resistance (V _{GS} = 10 Vdc, I _D = 3.5A) (V _{GS} = 4.5 Vdc, I _D = 2.5A)	r _{DS(on)}	-- --	0.080 0.134	0.100 0.190	Ohms

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} = 15 Vdc, I _D = 1.0 A, V _{GEN} = 10V, R _L = 10Ω)	t _{d(on)}	–	10	20	ns
Rise Time		t _r	--	15	30	
Turn-Off Delay Time		t _{d(off)}	--	20	35	
Fall Time		t _f	--	10	20	
Gate Charge		Q _T	--	3000	–	pC

SOURCE-DRAIN DIODE CHARACTERISTICS

Continuous Current	I _S	–	–	1.0	A
Pulsed Current	I _{SM}	–	–	5.0	
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.