



Preliminary Information

MGSF3455X

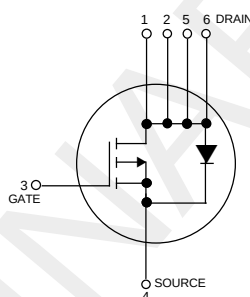
Motorola Preferred Device

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.

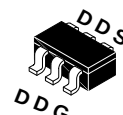
These miniature surface mount MOSFETs utilize Motorola's High Cell Density, HDTMOS process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in small power management circuitry. Typical applications are dc-dc converters, power management in portable and 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}	1.45 10	A
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	400	mW
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal Resistance -- Junction-to-Ambient	$R_{\theta JA}$	300	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$

ORDERING INFORMATION

Device	Reel Size	Tape Width	Quantity
MGSF3455XT1	7"	8mm Embossed tape	3000
MGSF3455XT3	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.

MGSF3455X

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 = 1.45A) (V _{GS} = 4.5 Vdc, I _D = 1.2A)	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}	–	0.85	–	

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

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