

MP9435

-30V P-Channel Enhancement Mode MOSFET

DESCRIPTION

The MP9435 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, MOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application, notebook computer power management and other battery powered circuits where high-side switching.

FEATURE

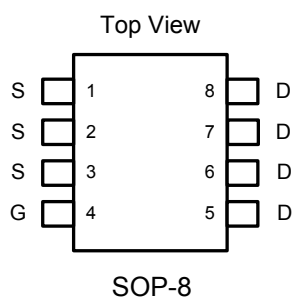
- ◆ -30V/-5.2A, $R_{DS(ON)} < 60m\Omega @ V_{GS} = -10V$
- ◆ -30V/-4.5A, $R_{DS(ON)} < 90m\Omega @ V_{GS} = -6.0V$
- ◆ -30V/-4.0A, $R_{DS(ON)} < 120m\Omega @ V_{GS} = -4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ Full RoHS compliance
- ◆ SOP-8 package design

APPLICATIONS

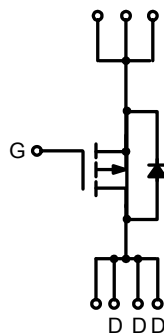
- ◆ Power Management in Note book
- ◆ Portable Equipment
- ◆ Battery Powered System
- ◆ DC/DC Converter
- ◆ Load Switch
- ◆ DSC
- ◆ LCD Display inverter

Single P-Channel Enhancement Mode MOSFET

PIN CONFIGURATION

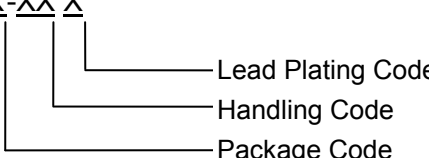


TOP VIEW
SOP-8



MP9435

PART MARKING INFORMATION

<p>MP9435X-XX X</p>  <p>Lead Plating Code Handling Code Package Code</p> <p>MARKING</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>MP9435 YYWWA</p> </div> <p>YY: Year Code WW: Week Code A: Process Code</p>	<p>Lead Plating Code G : This product is Halogen and Lead Free compliant.</p> <p>Handling Code TR : Tape&Reel</p> <p>Package Code M : SOP-8</p>
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ORDERING INFORMATION

Part Number	Package Code	Package	Shipping
MP9435M-TRG	M	SOP-8	2500 /Tape&Reel

- ※ Year Code : 00 ~ 99
- ※ Week Code : 01~52
- ※ SOP-8 : Only available in tape and reel packaging. (A reel contains 2500 devices)
- ※ G : Lead-free product. This product is RoHS compliant

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
D _{SS}	Drain-Source Voltage	-30	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current (T _J =150°C)	V _{GS} = -10V -5.2	A
I _{DM}	Pulsed Drain Current	-20	A
I _S	Continuous Source Current (Diode Conduction)	-2.4	A
T _J	Operation Junction Temperature	-55~150	°C
STG	Storage Temperature Range	-55~150	°C
D	Power Dissipation	T _A =25°C 1.8 T _A =70°C 2.8	W
R _{θJA}	Thermal Resistance-Junction to Ambient	70	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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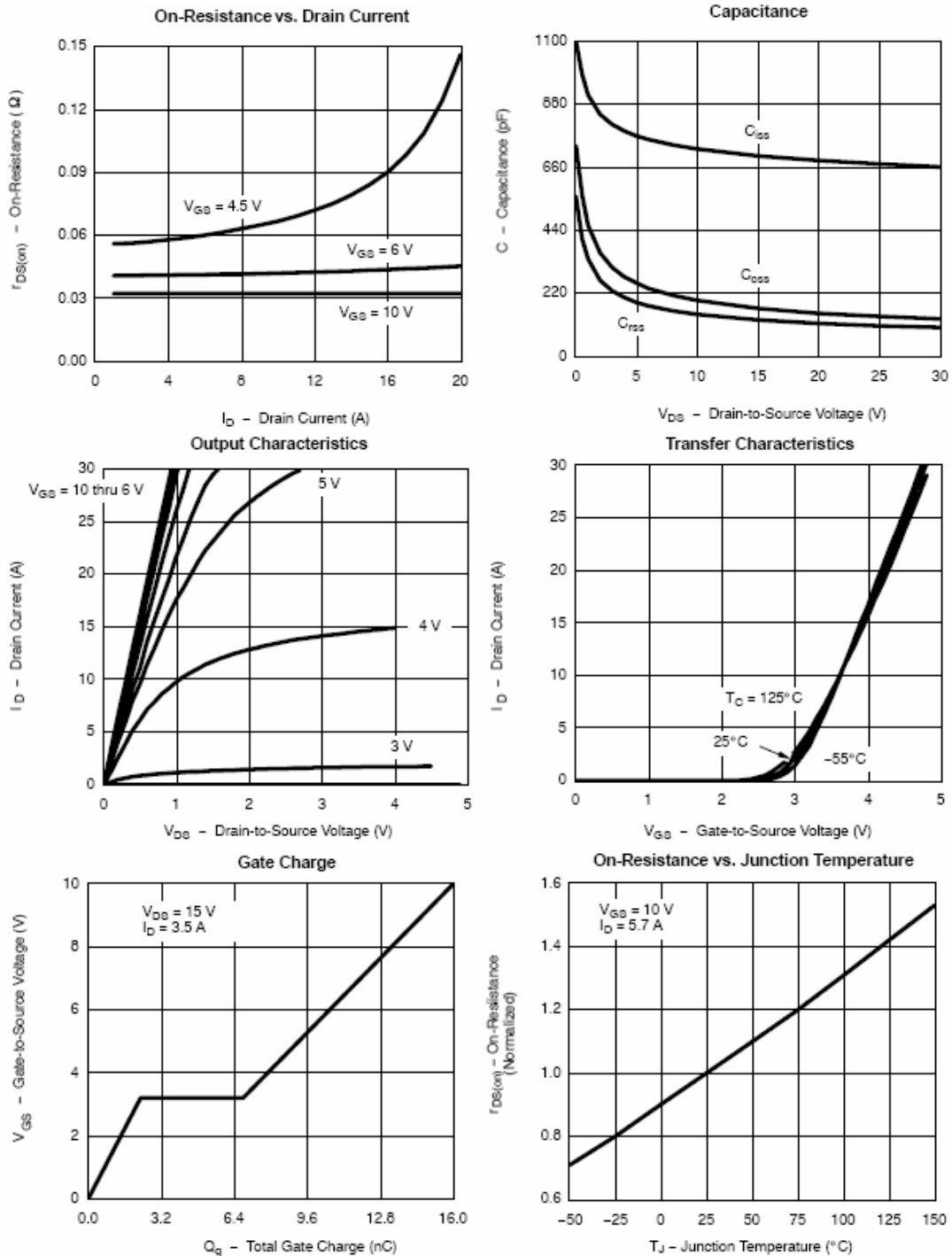
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Symbol	Parameter		Min	Typ	Max	Unit
Static Parameters						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0		-3.0	V
I_{GSS}	Gate Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -30V, V_{GS} = 0V$ $T_J = 55^\circ\text{C}$			-5	
$I_{D(ON)}$	On-State Drain Current	$V_{DS} \leq -5V, V_{GS} \leq -10V$	-25			A
$R_{DS(ON)}$	Drain-source On-Resistance	$V_{GS} = -10V, I_D = -5.2A$		45	60	m Ω
		$V_{GS} = -6.0V, I_D = -4.5A$		60	90	
		$V_{GS} = -4.5V, I_D = -4.0A$		70	120	
G_{fs}	Forward Transconductance	$V_{DS} = -10V, I_D = -5.2A$		10		S
Source-Drain Diode						
I_S	Diode forward Current (Max.)				2.6	A
V_{SD}	Diode Forward Voltage	$I_S = -2.0A, V_{GS} = 0V$		-0.8	-1.2	V
Dynamic Parameters						
Q_g	Total Gate Charge	$V_{DS} = -15V, V_{GS} = -10V$ $I_D = -5.0A$		15	10	nC
Q_{gs}	Gate-Source Charge			4.0		
Q_{gd}	Gate-Drain Charge			2.0		
C_{iss}	Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V$ $f = 1\text{MHz}$		680		pF
C_{oss}	Output Capacitance			120		
C_{rss}	Reverse Transfer Capacitance			75		
$t_{d(on)}$	Turn-On Time	$V_{DD} = -15V, R_L = 15\Omega$ $I_D = -1.0A, V_{GEN} = -10V$ $R_G = 6\Omega$		7.0	15	nS
t_r				10	20	
$t_{d(off)}$	Turn-Off Time			40	80	
t_f				20	40	

Note : 1. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
 2. Static parameters are based on package level with recommended wire-bonding

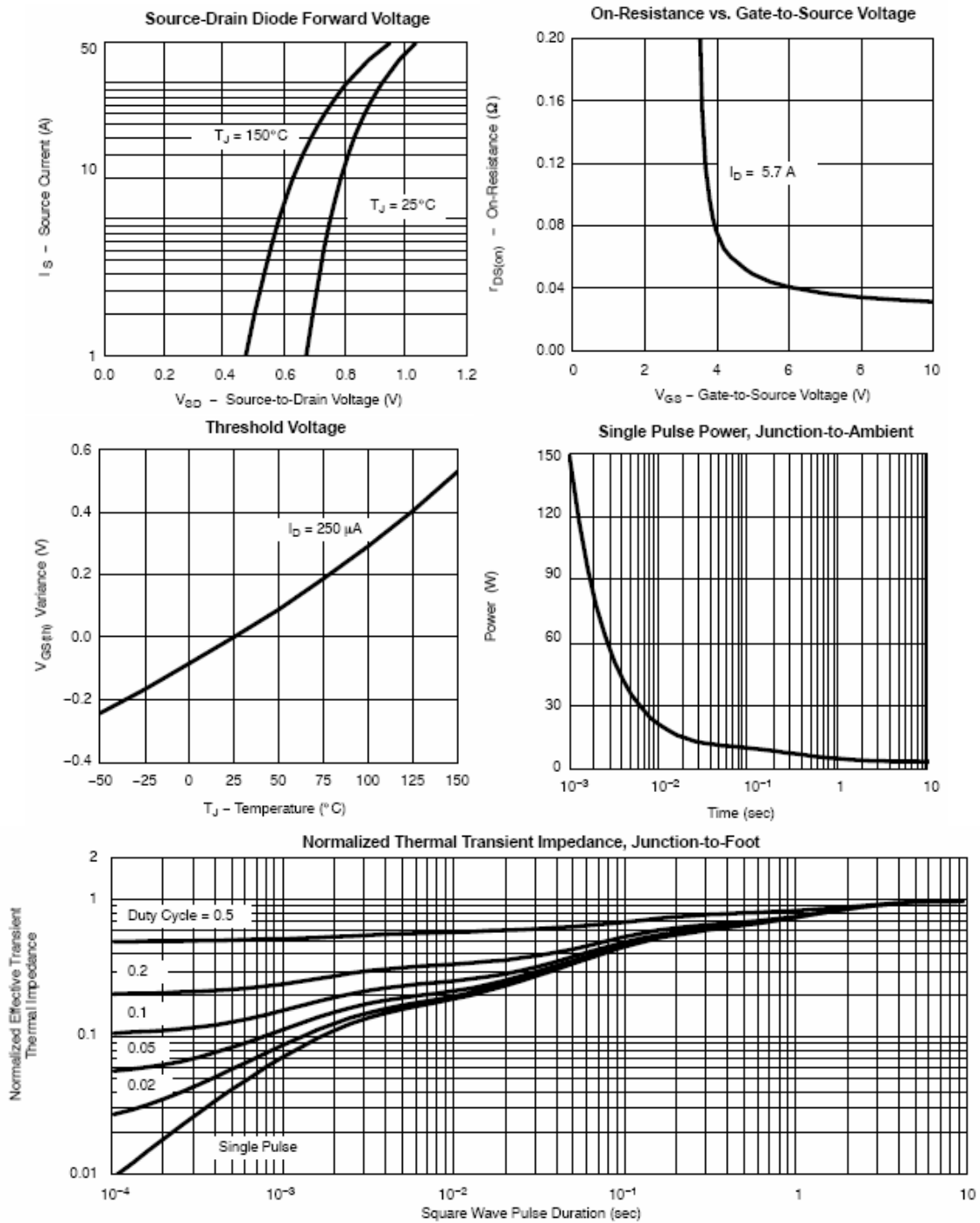
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TYPICAL CHARACTERISTICS (25°C Unless Note)



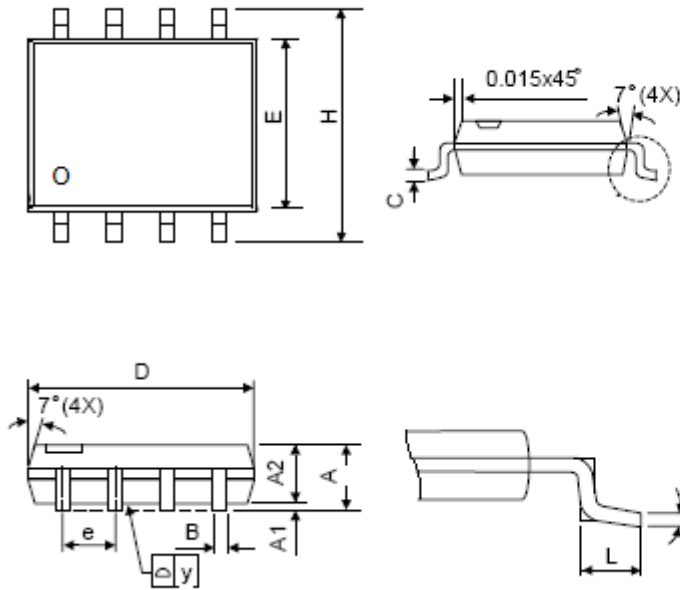
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TYPICAL CHARACTERISTICS (25°C Unless Note)



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■ SOP-8 PACKAGE DIMENSIONS



Dimensions				
Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	0.055	0.069	1.40	1.75
A1	0.040	0.100	0.10	0.25
A2	0.051	0.059	1.30	1.50
B	0.013	0.020	0.33	0.51
C	0.0075	0.010	0.19	0.25
D	0.189	0.209	4.80	5.30
E	0.146	0.161	3.70	4.10
e	-	-	-	-
H	0.228	0.244	5.79	6.20
L	0.015	0.050	0.38	1.27
y	-	0.004	-	0.10
θ	0°	8°	0°	8°