30V P-Channel Enhancement Mode MOSFET

GENERAL DESCRIPTION

The **ME9435** is the P-Channel logic enhancement mode power field effect transistors, using high cell density, DMOS trench technology.

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

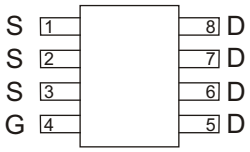
These devices are particularly suited for low voltage application such as cellular phone, notebook computer power management and other battery powered circuits,and low in-line power loss that are needed in a very small outline surface mount package.

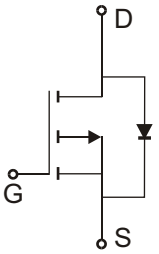
FEATURES

1. -30V/-5.3A, $R_{DS(ON)}$=60mΩ@V_{GS}=-10V
2. -30V/-4.2A, $R_{DS(ON)}$=100mΩ@V_{GS}=-4.5V

PIN CONFIGURATION

(SOP-8)
Top View





Absolute Maximum Ratings (TA=25℃ Unless Otherwise Noted)				
Parameter		**Symbol**	**Limits**	**Units**
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	-5.3	A
Pulsed Drain Current [1]		I_{DM}	-20	A
Maximum Power Dissipation	T_A=25℃	P_D	2.5	W
	T_A=70℃			
Operating Junction Temperature		T_J	-55 to 150	℃
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	30	℃/W
Junction-to-Ambient Thermal Resistance (PCB mounted) [2]		$R_{\theta JA}$	50	℃/W

Notes:1.Maximum DC current limited by the package
2.1-in^2 2oz Cu PCB board

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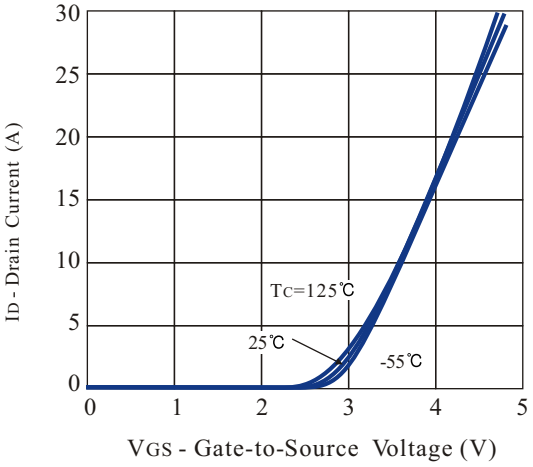
Electrical Characteristics (T_J =25℃ Unless Specified)

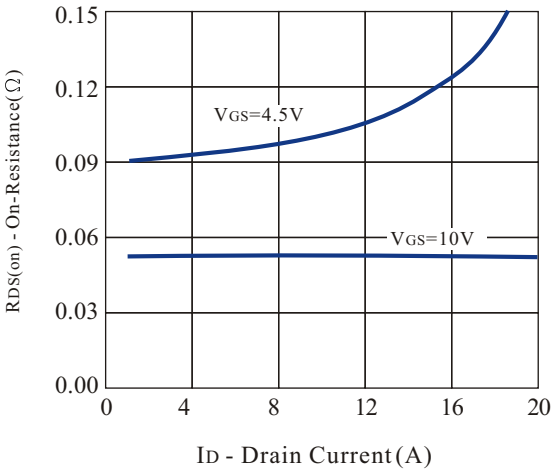
Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-30			V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS} = -10V, I_D = -5.3A		0.055	0.06	Ω
		V_{GS} =-4.5V, I_D = -4.2A		0.09	0.1	
$V_{GS(th)}$	Gate-Threshold Voltage	V_{DS} =V_{GS}, I_D=-250μA	-1.0	-2.2	-3.0	V
I_{GSS}	Gate-Body Leakage	V_{GS} =±20V, V_{DS} = 0V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -24V, V_{GS} = 0V			-1	μA
g_{FS}	Forward Transconductance	V_{DS} = -15V, I_D =-5.3A	4	7		S
DYNAMIC						
Q_g	Total Gate Charge	V_{DS}=-15V, I_D=-5.3A, V_{GS}=-10V		9.52		nC
Q_{gs}	Gate-Source Charge			3.43		
Q_{gd}	Gate-Drain Charge			1.71		
$t_{D(on)}$	Turn-On Delay Time	V_{DD}= -15V, R_L = 15Ω, I_D = -1A, V_{GEN}=-10V, R_G = 6Ω		10.8		ns
t_r	Turn-On Rise Time			2.33		
$t_{D(off)}$	Turn-Off Delay Time			22.53		
t_f	Turn-Off Fall Time			3.87		
SOURCE-DRAIN DIODE						
I_S	Max.Diode Forward Current				-1.9	A
V_{SD}	Diode Forward Voltage	I_S =-5.3A, V_{GS} = 0V			-1.3	V

Typical Characteristics (T_J =25℃ Noted)

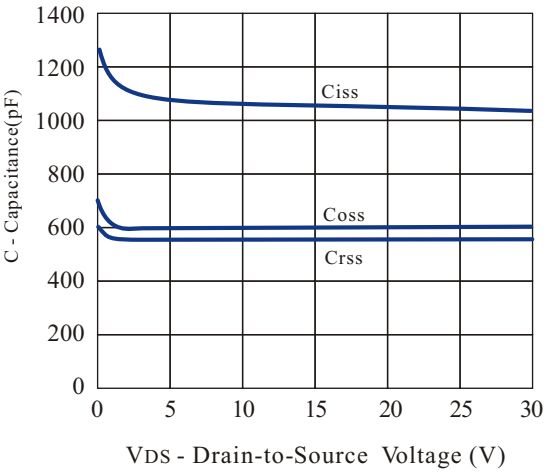
Transfer Characteristics



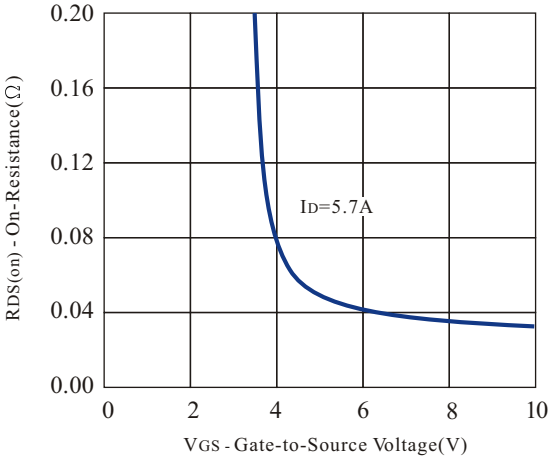
On- Resistance vs.Drain Current



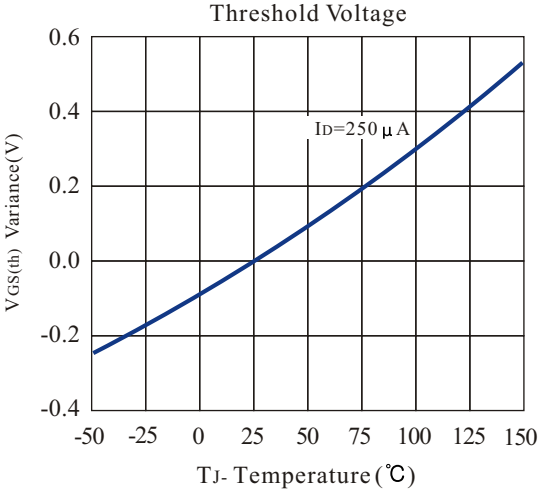
Capacitance



On- Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Physical Dimensions inches(millimeters) unless otherwise noted

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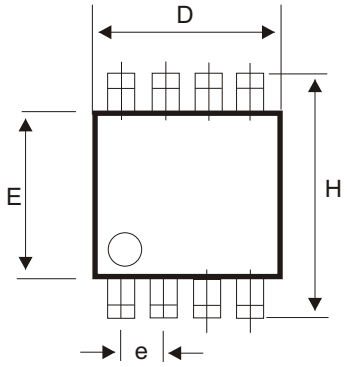

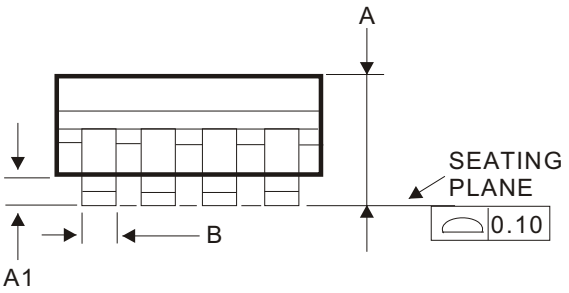

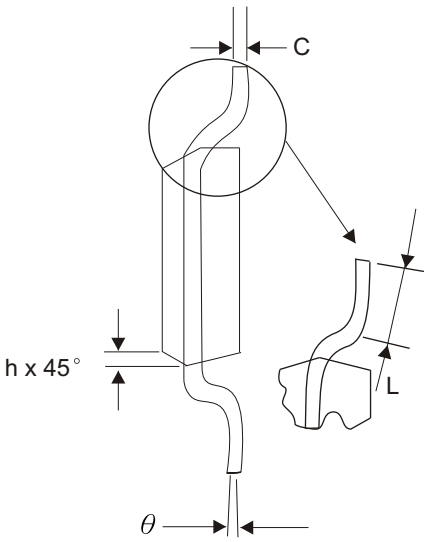

DIM	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.35	0.49
C	0.18	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
h	0.25	0.50
L	0.40	1.25
θ	0°	7°