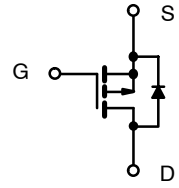




MT9435 P-Channel Enhancement Mode Power MOSFET

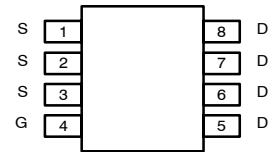
Description

The MT9435 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V.



General Features

- $V_{DS} = -30V$
 - $R_{DS(ON)} < 85m\Omega @ V_{GS} = -4.5V \quad I_D = -4.2A$
 - $R_{DS(ON)} < 57m\Omega @ V_{GS} = -10V \quad I_D = -5.3A$
- High power and current handling capability
- Lead free product is acquired
- Surface mount package



SOP-8

Application

- Battery Switch
- Load switch
- Power management

MARKING 9435

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ($T_J = 150^\circ C$)	$T_A = 25^\circ C$	I_D	-5.3	A
Drain Current-Pulsed (Note 1)		I_{DM}	-20	A
Maximum Power Dissipation		P_D	2.0	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	50	$^\circ C/W$
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Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	-33	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-	-3.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-5.3A$	-	51	57	m Ω
		$V_{GS}=-4.5V, I_D=-4.2A$	-	75	85	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-15V, I_D=-5.3A$	10	-	-	S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V,$ $F=1.0\text{MHz}$	-	845	-	PF
Output Capacitance	C_{oss}		-	120	-	PF
Reverse Transfer Capacitance	C_{rss}		-	80	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-25V, I_D=-2A,$ $V_{GS}=-10V, R_{GEN}=6\Omega$ $R_L=12.5\Omega$	-	17	-	nS
Turn-on Rise Time	t_r		-	18	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	60	-	nS
Turn-Off Fall Time	t_f		-	27	-	nS
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-4.6A$ $V_{GS}=-10V$	-	22	-	nC
Gate-Source Charge	Q_{gs}		-	4.5	-	nC
Gate-Drain Charge	Q_{gd}		-	2	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-2.0A$	-	-	-1.2	V

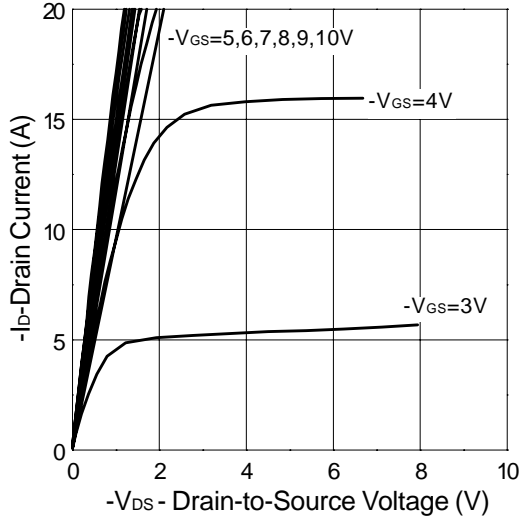
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

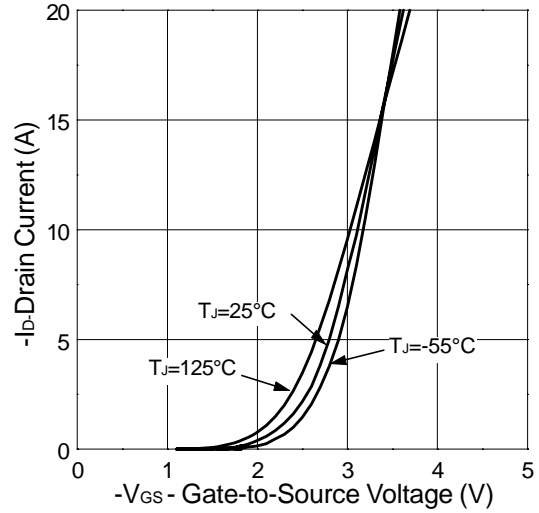


Typical Characteristics

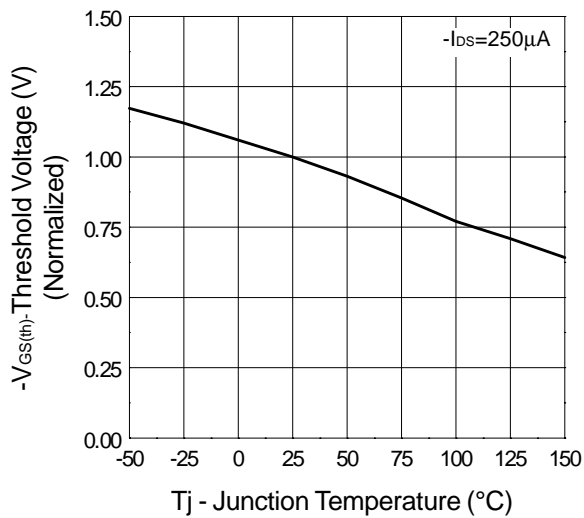
Output Characteristics



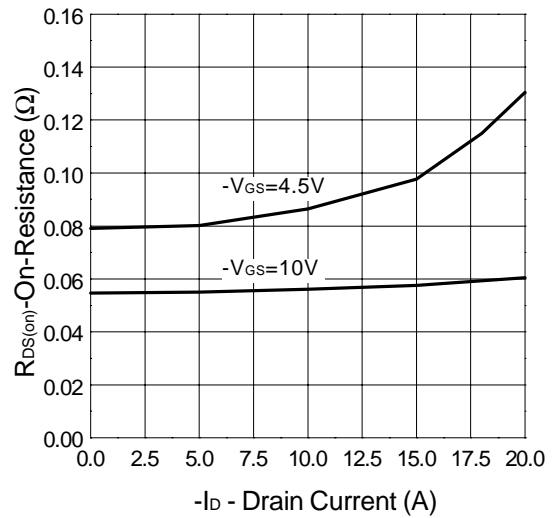
Transfer Characteristics



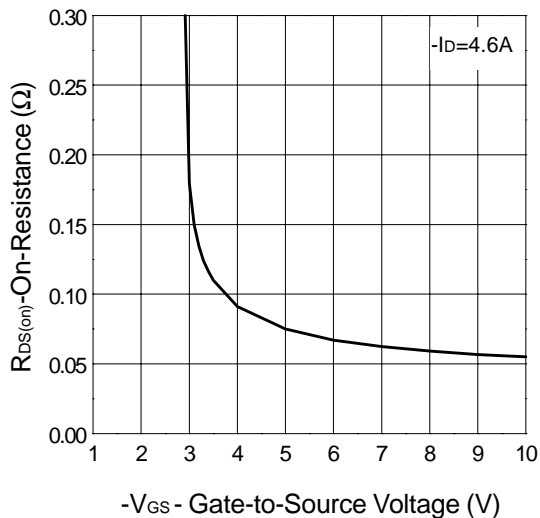
Threshold Voltage vs. Junction Temperature



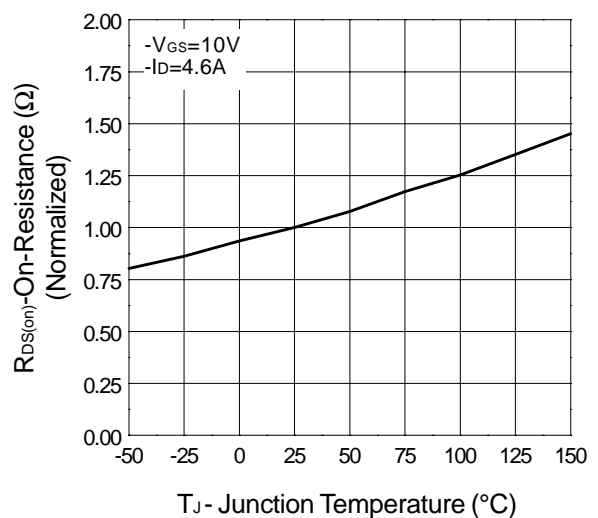
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

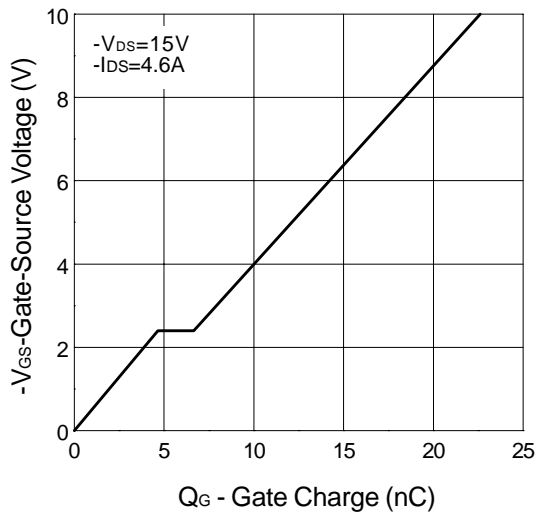


On-Resistance vs. Junction Temperature

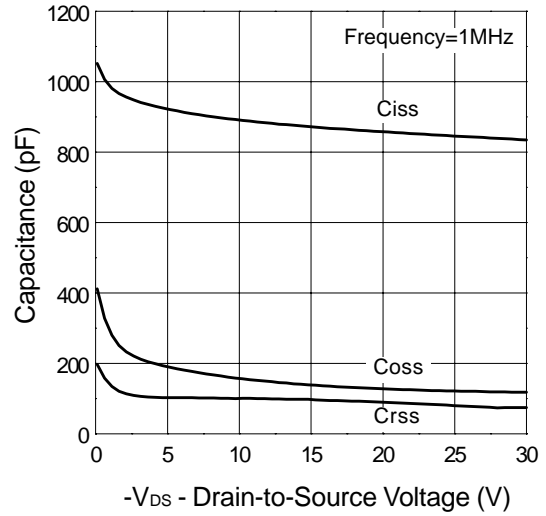




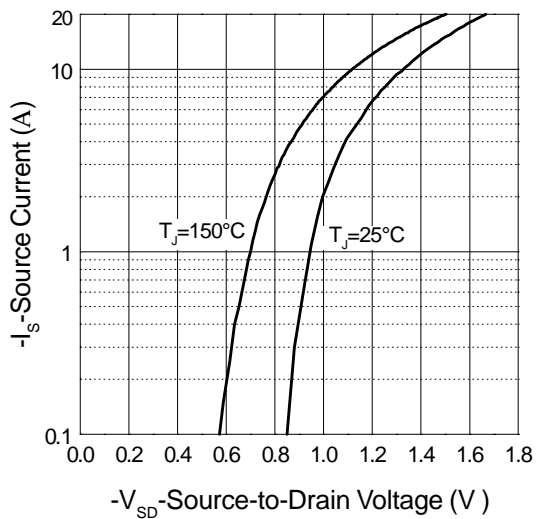
Gate Charge



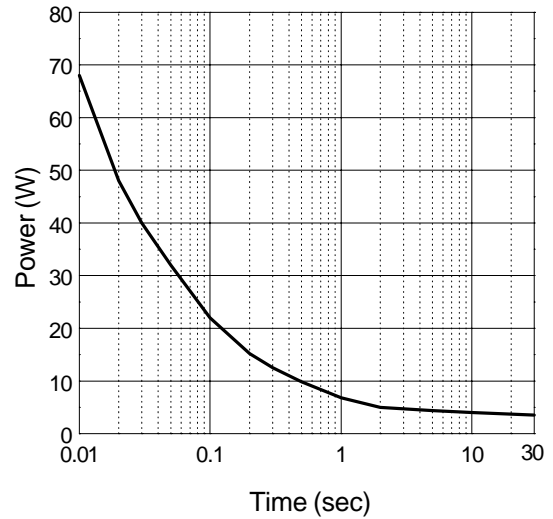
Capacitance



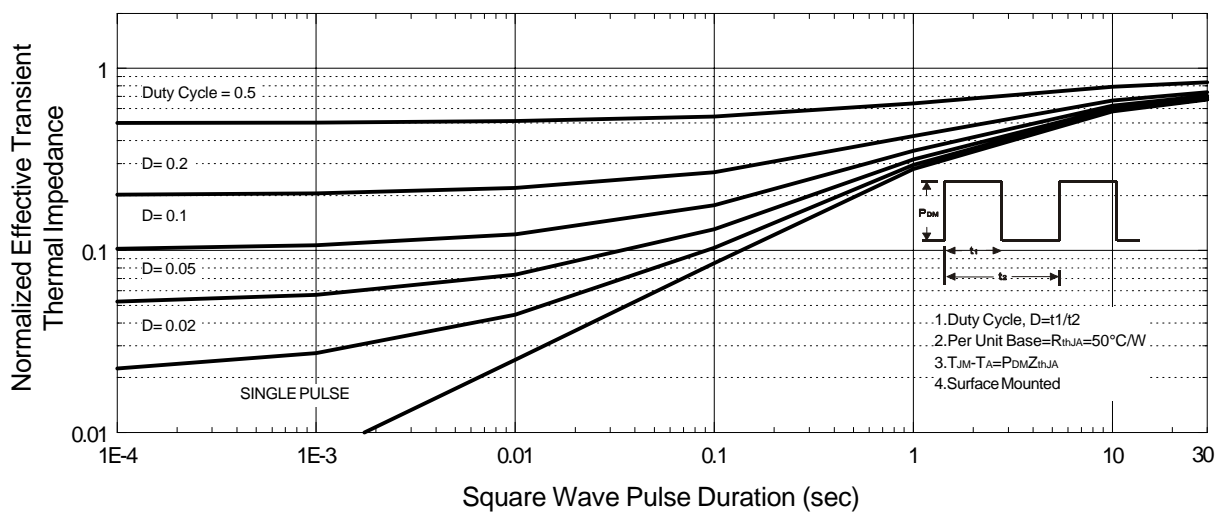
Source-Drain Diode Forward Voltage



Single Pulse Power

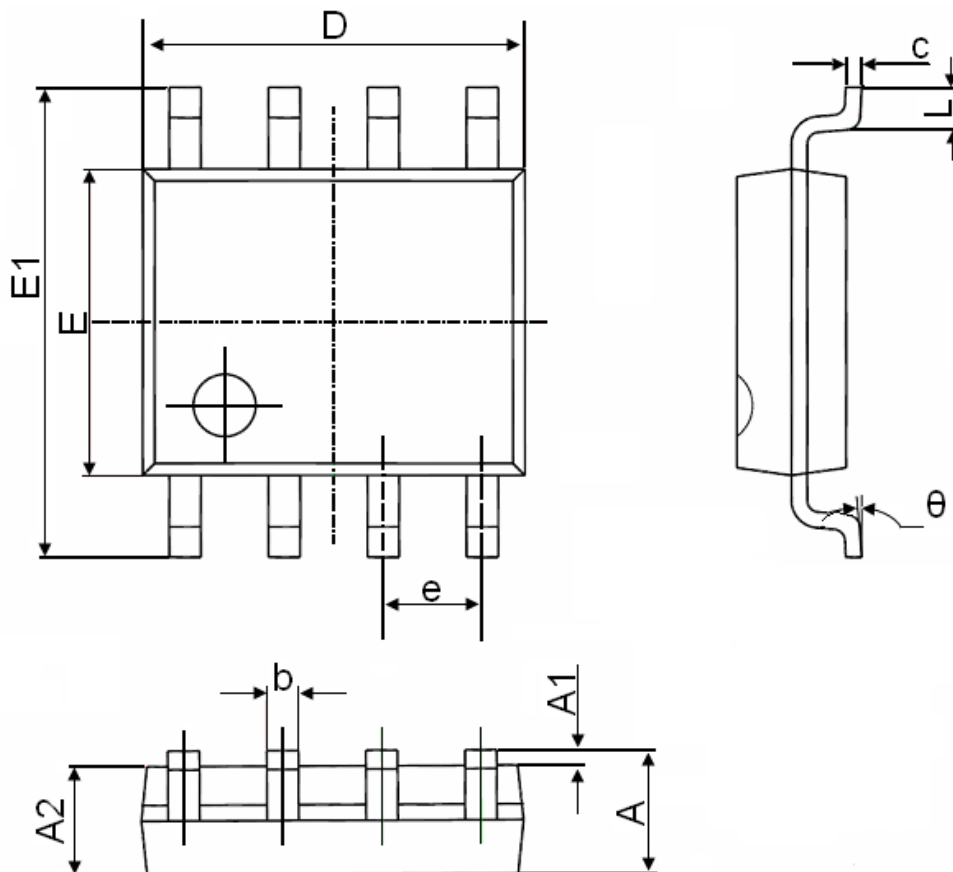


Normalized Thermal Transient Impedance, Junction to Ambient





SOP-8 Package Information

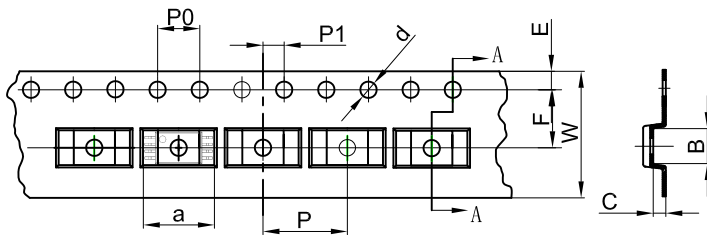


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



SOP8 Tape and Reel

SOP8 Embossed Carrier Tape



Packaging Description:

SOP8 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

ALL DIM IN mm

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOP8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOP8 Tape Leader and Trailer

