
4AM11

Silicon N-Channel/P-Channel Power MOS FET Array

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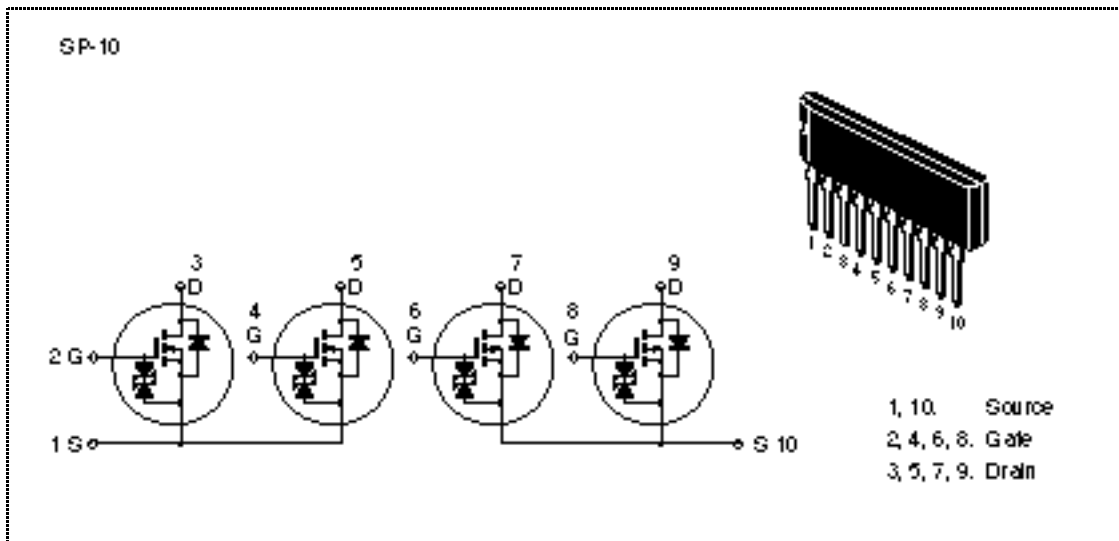
Application

High speed power switching

Features

- Low on-resistance
N-channel: $R_{DS(on)} \leq 0.17 \Omega$, $V_{GS} = 10 \text{ V}$, $I_D = 2.5 \text{ A}$
P-channel: $R_{DS(on)} \leq 0.2 \Omega$, $V_{GS} = -10 \text{ V}$, $I_D = -2.5 \text{ A}$
- Capable of 4 V gate drive
- Low drive current
- High speed switching
- High density mounting
- Suitable for H-bridged motor driver

Outline



Absolute Maximum Ratings (Ta = 25°C) (1 Unit)

Item	Symbol	Rating		Unit
		Nch	Pch	
Drain to source voltage	V_{DSS}	60	-60	V
Gate to source voltage	V_{GSS}	±20	±20	V
Drain current	I_D	5	-5	A
Drain peak current	$I_{D(pulse)}^{*1}$	20	-20	A
Body to drain diode reverse drain current	I_{DR}	5	-5	A
Channel dissipation	$P_{ch} (T_c = 25^\circ C)^{*2}$	28		W
Channel dissipation	P_{ch}^{*2}	4		W
Channel temperature	T_{ch}	150		°C
Storage temperature	T_{stg}	-55 to +150		°C

Notes: 1. PW £ 10 µs, duty cycle £ 1%

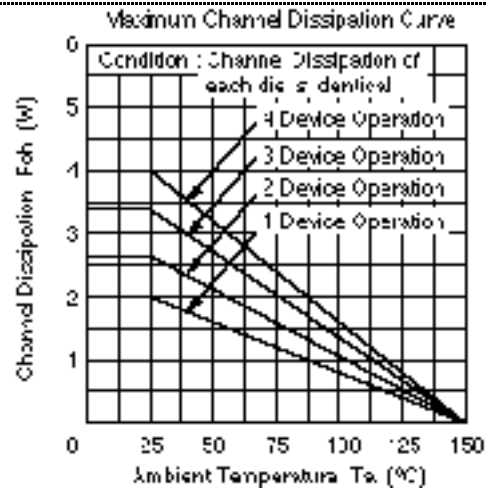
2. 4 Devices operation

Electrical Characteristics (Ta = 25°C) (1 Unit)

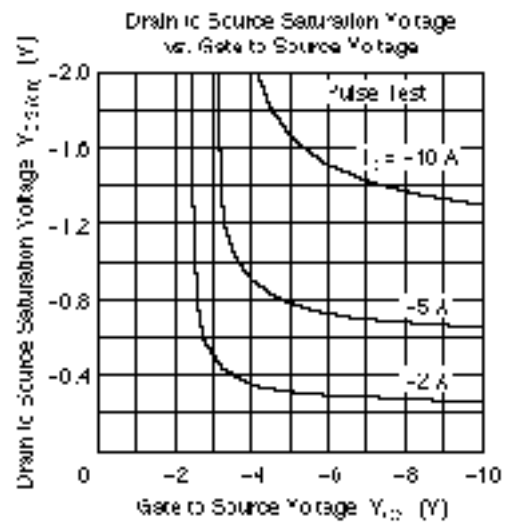
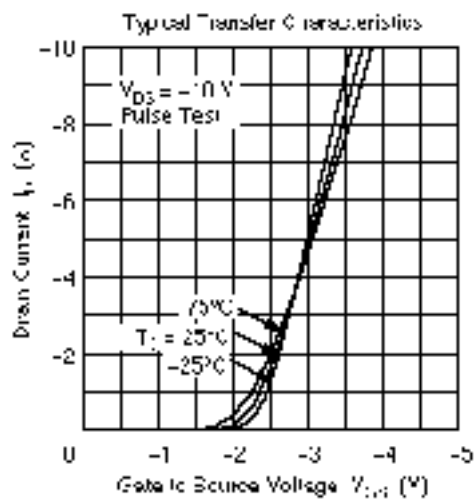
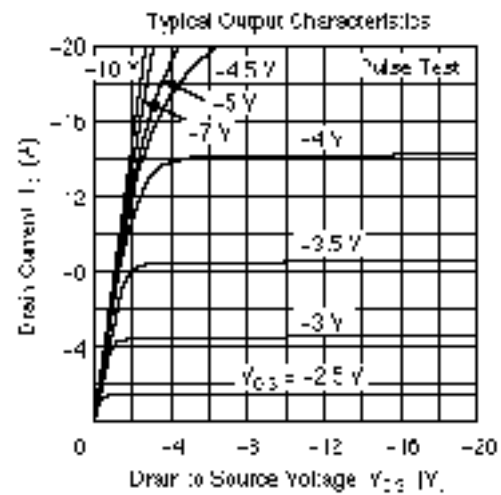
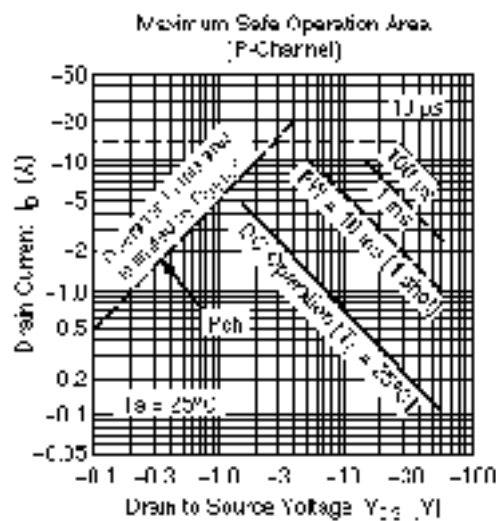
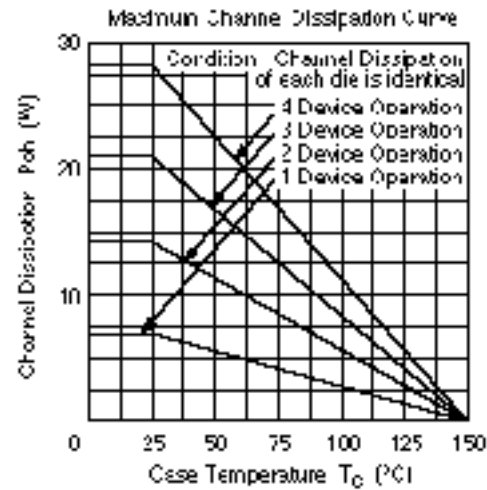
Item	Symbol	N channel			P channel			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Drain to source breakdown voltage	$V_{(BR)DS}$	60	—	—	−60	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GS}$	±20	—	—	±20	—	—	V	$I_G = \pm 100 \text{ } \mu\text{A}, V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	—	—	±10	μA	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	250	—	—	−250	μA	$V_{DS} = 50 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	−1.0	—	−2.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.13	0.17	—	0.15	0.2	W	$I_D = 2.5 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
		—	0.18	0.24	—	0.20	0.27	W	$I_D = 2.5 \text{ A}, V_{GS} = 4 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	2.7	4.5	—	2.7	5.0	—	S	$I_D = 2.5 \text{ A}, V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	400	—	—	900	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance	C_{oss}	—	220	—	—	460	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	C_{rss}	—	60	—	—	130	—	pF	
Turn-on delay time	$t_{d(on)}$	—	5	—	—	8	—	ns	$I_D = 2.5 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time	t_r	—	30	—	—	35	—	ns	$R_L = 12 \text{ } \Omega$
Turn-off delay time	$t_{d(off)}$	—	170	—	—	180	—	ns	
Fall time	t_f	—	75	—	—	85	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.0	—	—	−1.0	—	V	$I_F = 5 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	100	—	—	170	—	μs	$I_F = 5 \text{ A}, V_{GS} = 0,$ $dI_F/dt = 50 \text{ A}/\mu\text{s}$

Note: 1. Pulse Test

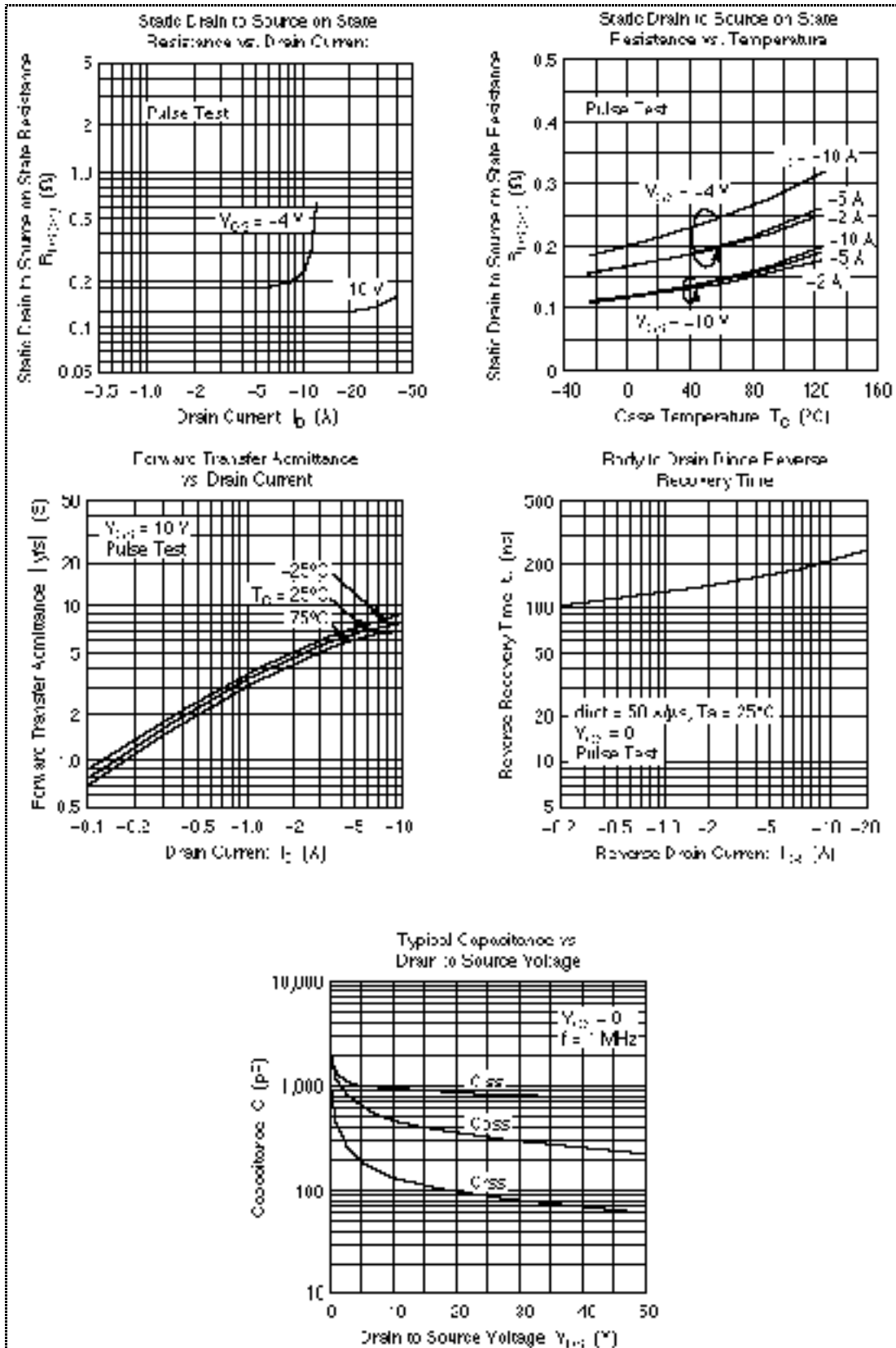
Polarity of test conditions for P channel device is reversed.



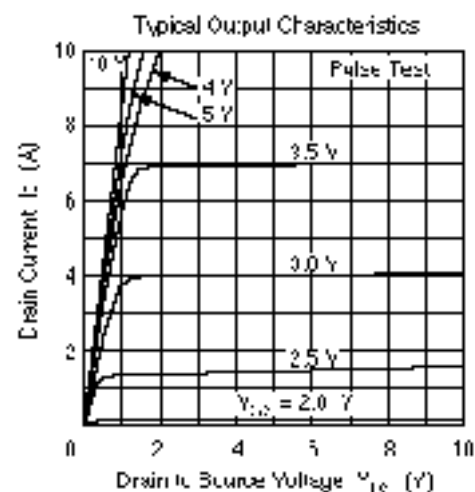
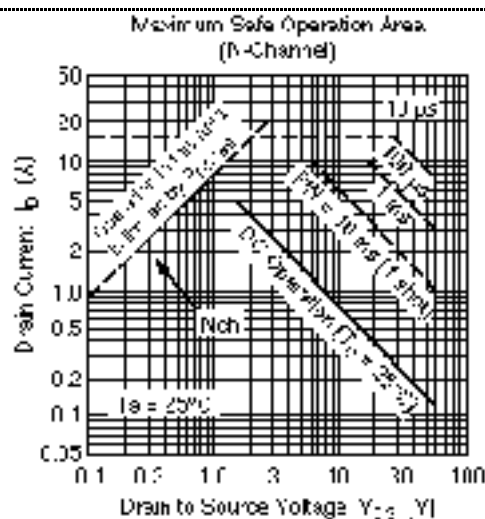
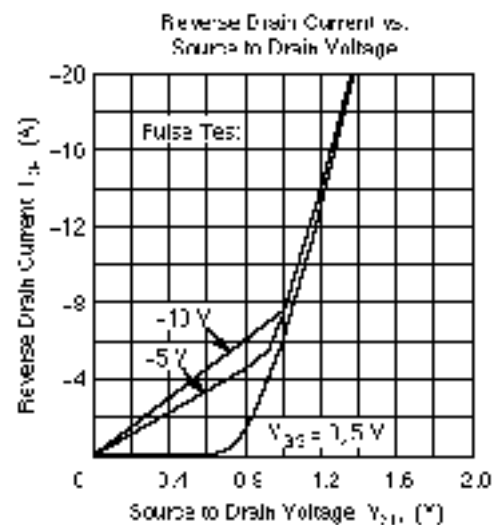
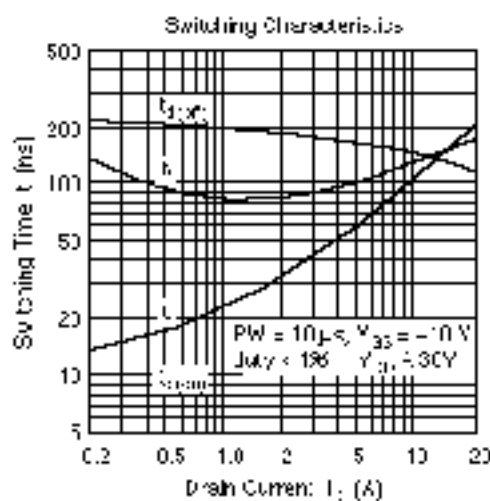
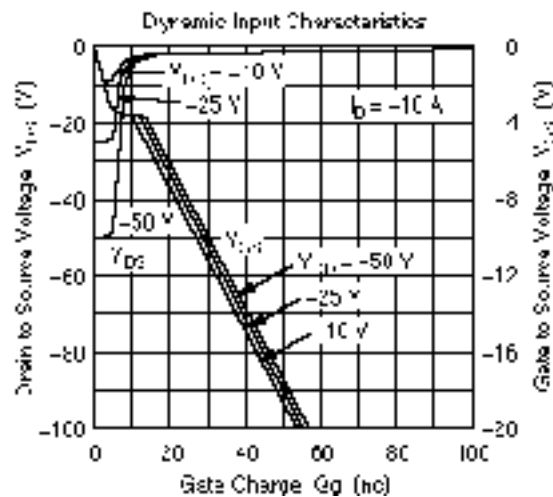
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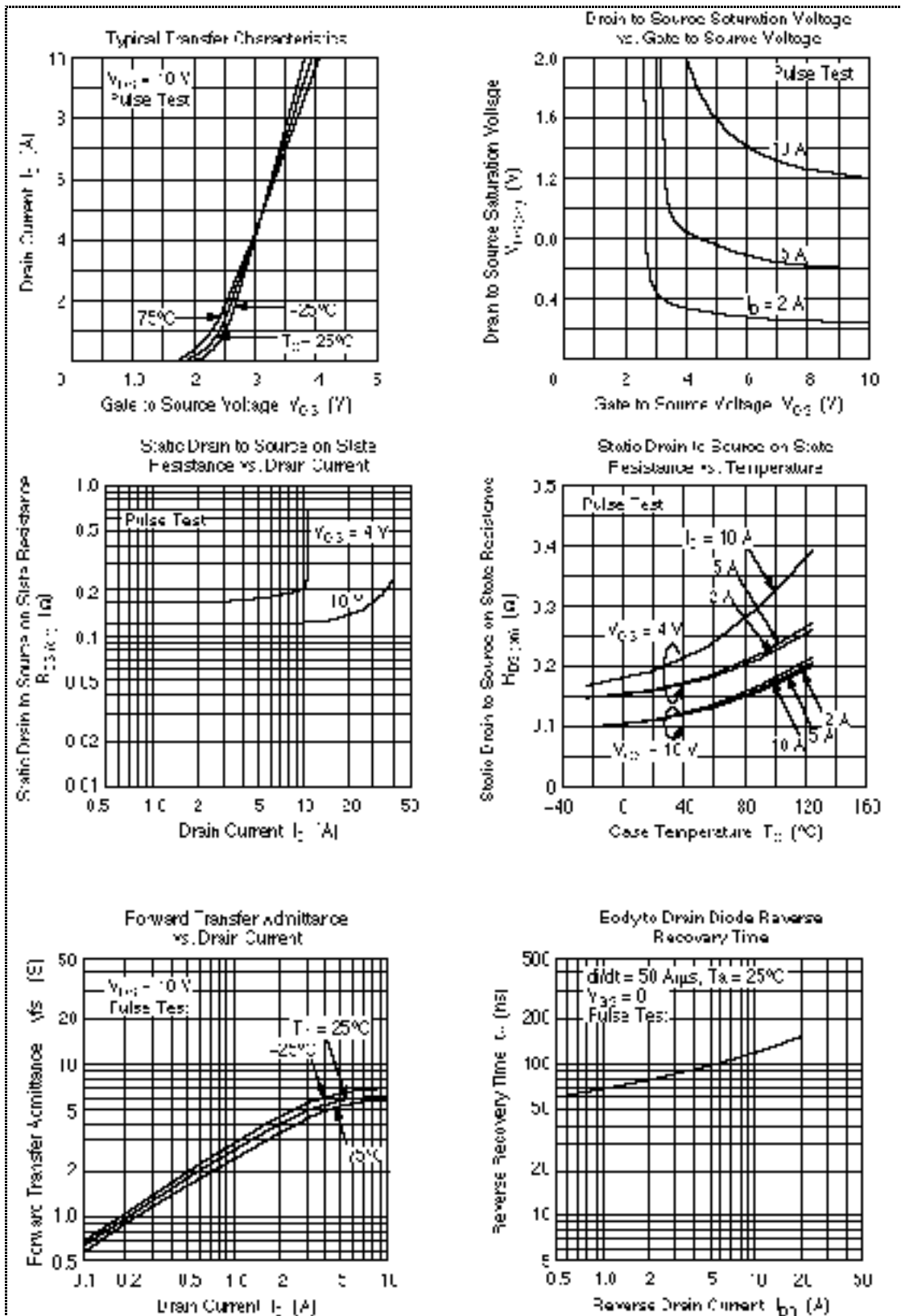
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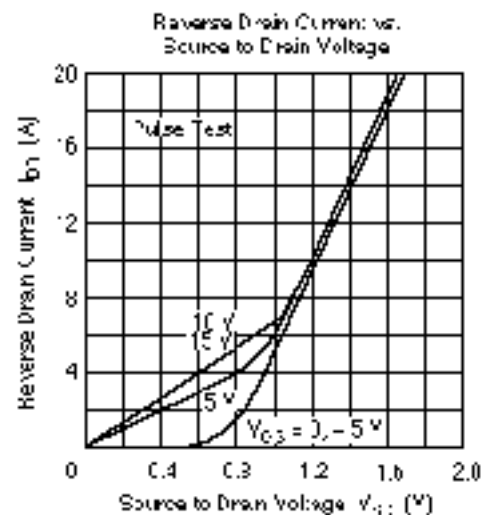
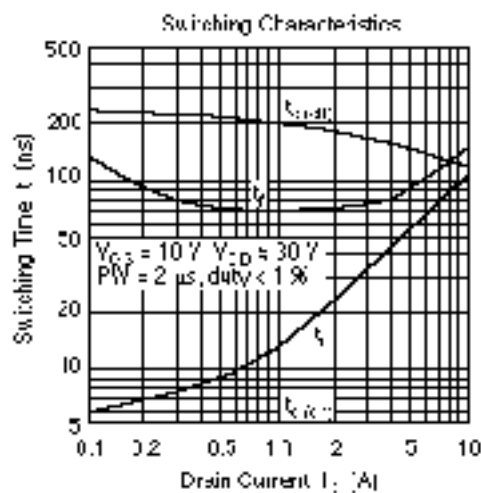
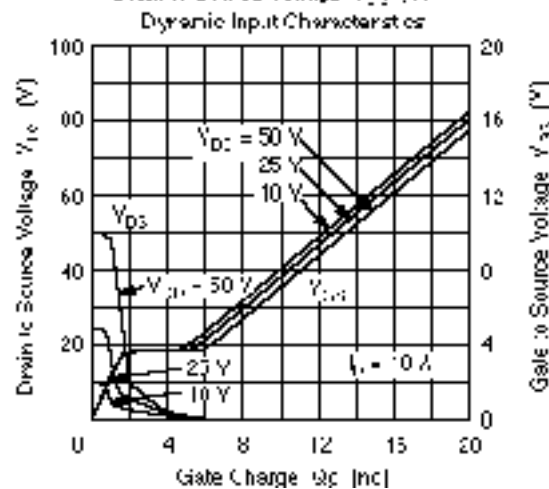
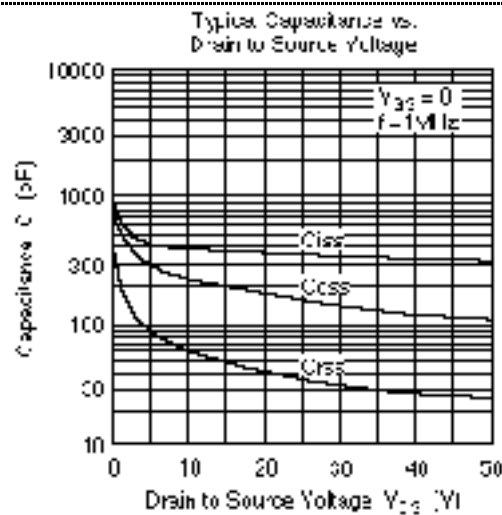
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