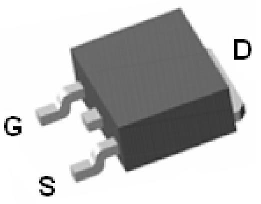
P0465AD

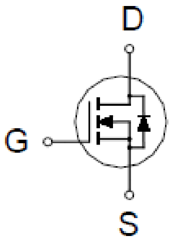
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
650V	2.5Ω @V_{GS} = 10V	4A



TO-252



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	
Continuous Drain Current[2]	T_C = 25 °C	I_D	4	A
	T_C = 100 °C		2.5	
Pulsed Drain Current[1, 2]		I_{DM}	7	
Avalanche Energy[3]		E_{AS}	20	mJ
Power Dissipation	T_C = 25 °C	P_D	26	W
	T_C = 100 °C		10	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		4.8	°C / W

[1] Pulse width limited by maximum junction temperature.

[2] Limited only by maximum temperature allowed.

[3] V_{DD} = 50V , L = 10mH ,starting T_J = 25 ° C.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	650			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.5	3.6	4.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±30V			±100	nA
Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650V, V_{GS} = 0V , T_C = 25 °C			25	μA
		V_{DS} = 520V, V_{GS} = 0V , T_C = 100 °C			250	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 2A		2	2.5	Ω
Forward Transconductance[1]	g_{fs}	V_{DS} = 15V, I_D = 2A		3.1		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		766		pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			8		
Total Gate Charge[2]	Q_g	V_{DD} = 520V, I_D = 4A, V_{GS} = 10V		16.1		nC
Gate-Source Charge[2]	Q_{gs}			4.6		
Gate-Drain Charge[2]	Q_{gd}			5.6		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 325V, I_D = 4A, R_G= 6Ω		23		nS
Rise Time[2]	t_r			26		
Turn-Off Delay Time[2]	$t_{d(off)}$			65		
Fall Time[2]	t_f			31		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				4	A
Forward Voltage[1]	V_{SD}	I_F = 2A, V_{GS} = 0V			1.5	V
Reverse Recovery Time	t_{rr}	I_F = 4A, dI_F/dt = 100A / μS		304		nS
Reverse Recovery Charge	Q_{rr}			1.1		uC

[1] Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2] Independent of operating temperature.

[3] Pulse width limited by maximum junction temperature.

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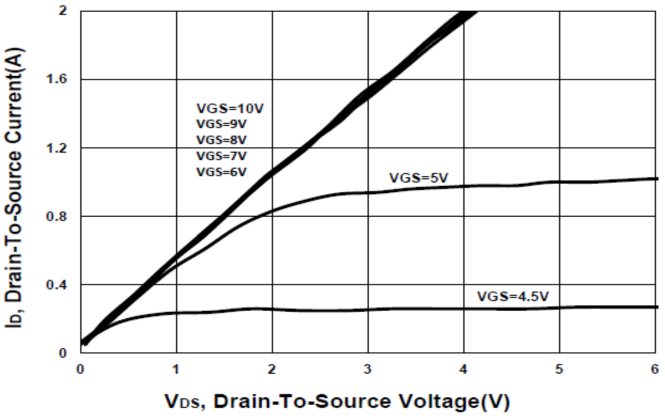
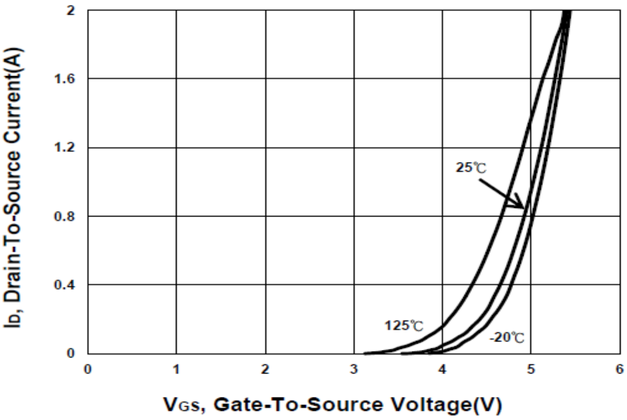
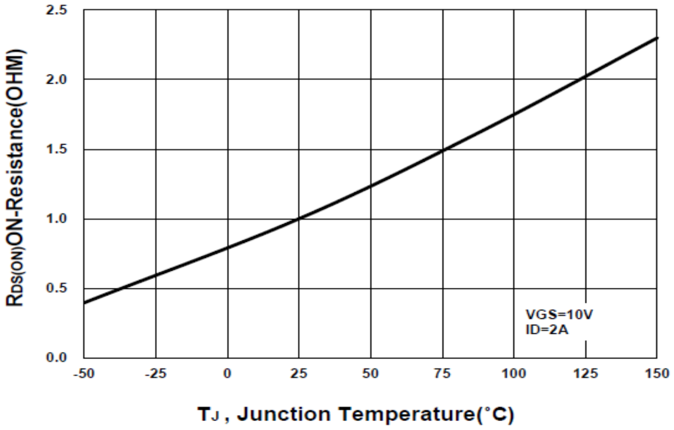
Output Characteristics



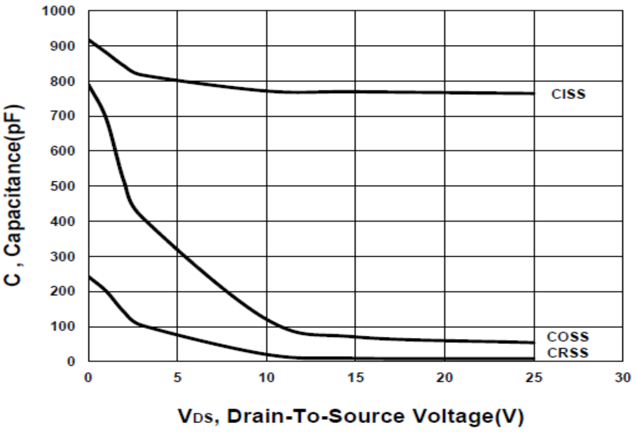
Transfer Characteristics



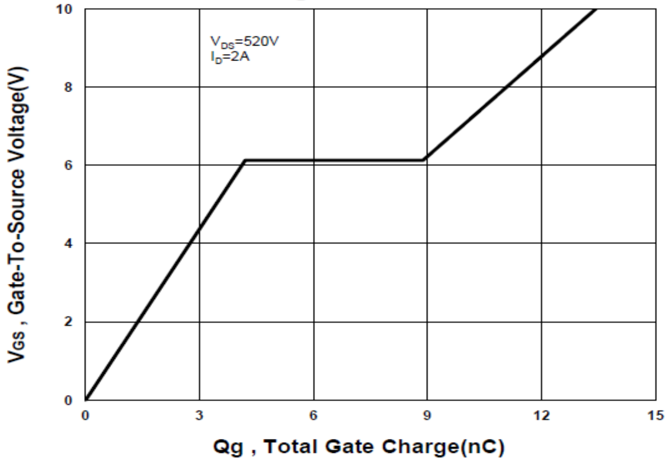
On-Resistance VS Temperature



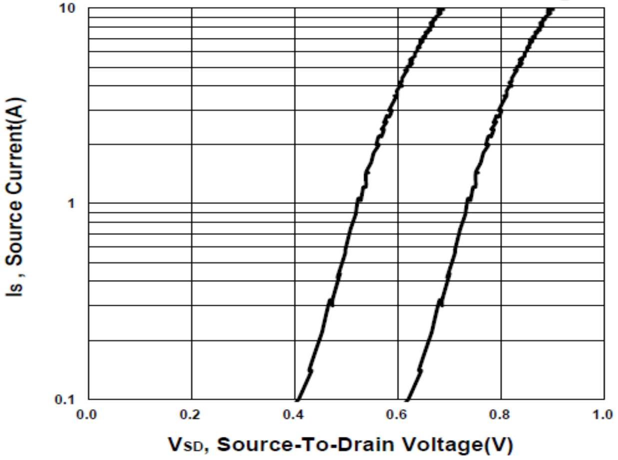
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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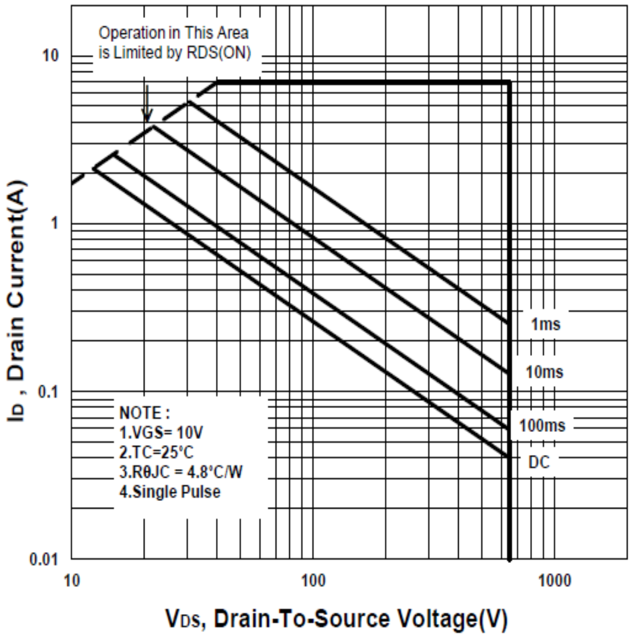
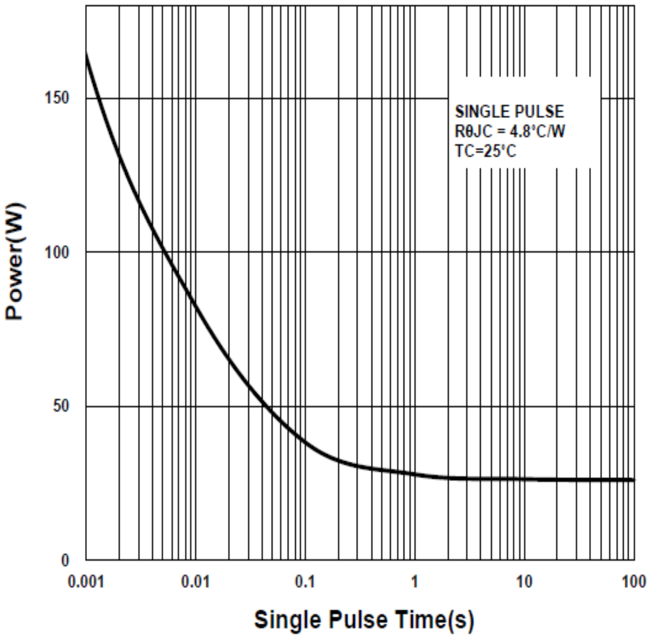
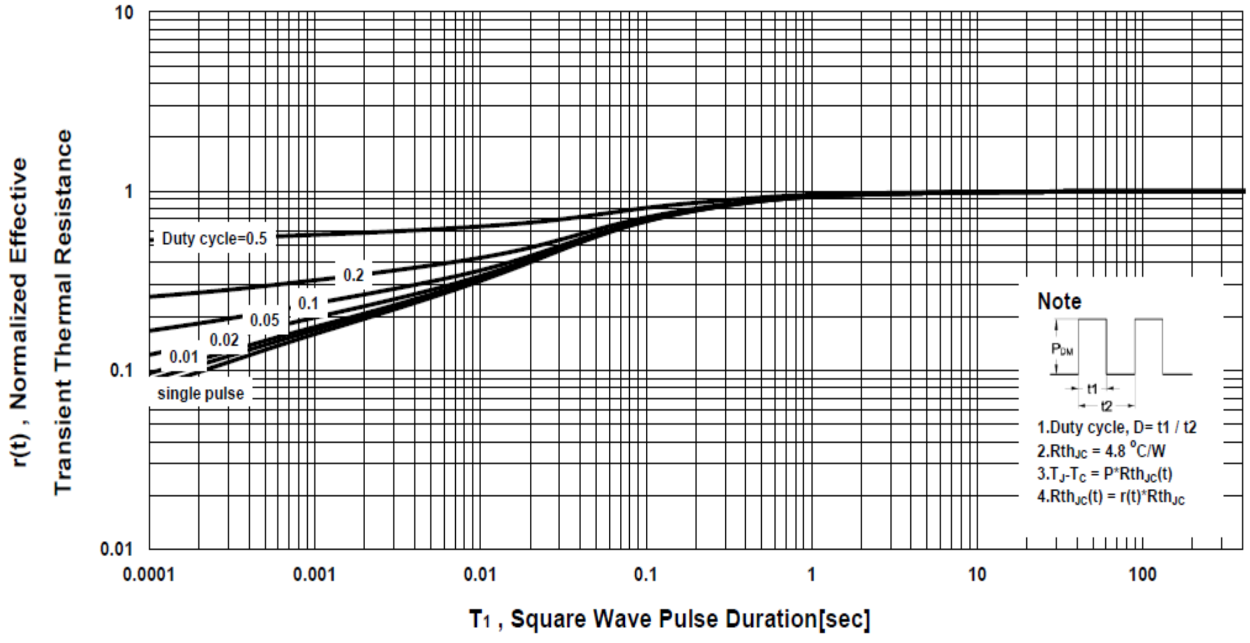


Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

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Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.5	K	0.15		1.49
C	0.4	0.5	0.61	L	0.4	0.76	0.91
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.35	0.5	0.65	S	4.57	5.1	5.52
F	0		0.2	T	3.81	4.75	5.24
G	5.3	6.1	6.3	U	1.4		1.78
H	0.5		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8