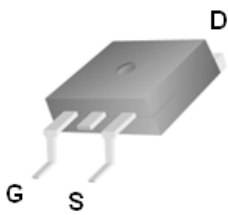


# P0460AS / P0460AT

## N-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

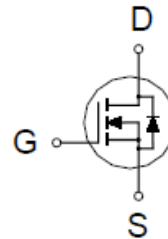
$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
600V	$2\Omega @ V_{GS} = 10V$	4A



TO-263



TO-220



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	600	V
Gate-Source Voltage		$V_{GS}$	$\pm 30$	
Continuous Drain Current <sup>2</sup>	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	4	A
	$T_C = 100\text{ }^\circ\text{C}$		2.5	
Pulsed Drain Current <sup>1,2</sup>		$I_{DM}$	20	
Avalanche Current <sup>3</sup>		$I_{AS}$	4	
Avalanche Energy <sup>3</sup>	$L = 10\text{mH}$	$E_{AS}$	80	mJ
Power Dissipation <sup>A</sup>	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	75	W
	$T_C = 100\text{ }^\circ\text{C}$		48	
Operating Junction & Storage Temperature Range		$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

### THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		1.67	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Limited only by maximum temperature allowed.

<sup>3</sup> $V_{DD} = 50V$ , starting  $T_J = 25^\circ\text{C}$

# P0460AS / P0460AT

## N-Channel Enhancement Mode MOSFET

### ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	600			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2.5		4.5	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±30V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 600V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 25 °C			25	μA
		V <sub>DS</sub> = 600V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 100 °C			250	
Drain-Source On-State	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 2A		1.85	2	Ω
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 2A		5		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1MHz		780		pF
Output Capacitance	C <sub>oss</sub>			56		
Reverse Transfer Capacitance	C <sub>rss</sub>			12		
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 300V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 4A		19.4		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			4.3		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			8.7		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = 300V, I <sub>D</sub> = 4A, R <sub>G</sub> = 25Ω		23		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			28		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			44		
Fall Time <sup>2</sup>	t <sub>f</sub>			44		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current <sup>3</sup>	I <sub>S</sub>				4	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 2A, V <sub>GS</sub> = 0V			1.5	V
Reverse Recovery Time	t <sub>rr</sub>	V <sub>GS</sub> = 0V, I <sub>F</sub> = 10A,		324		nS
Reverse Recovery Charge	Q <sub>rr</sub>	dI <sub>F</sub> /dt = 100A / μS		2.4		nC

<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

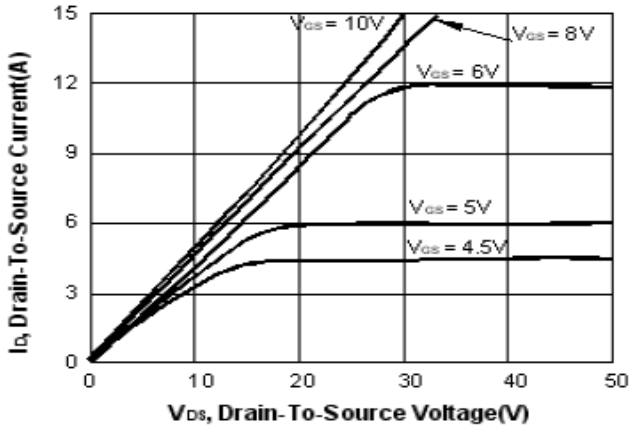
<sup>2</sup>Independent of operating temperature.

<sup>3</sup> Pulse width limited by maximum junction temperature.

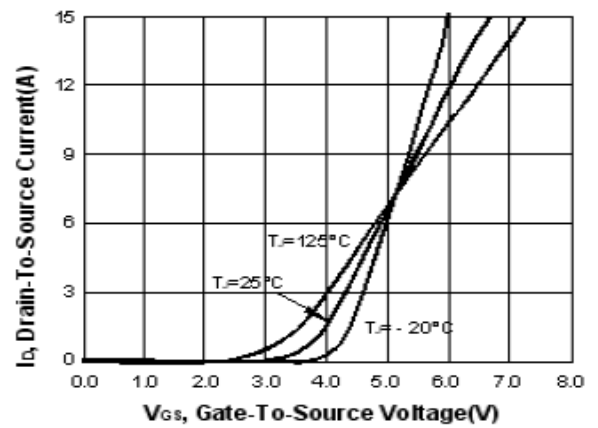
# P0460AS / P0460AT

## N-Channel Enhancement Mode MOSFET

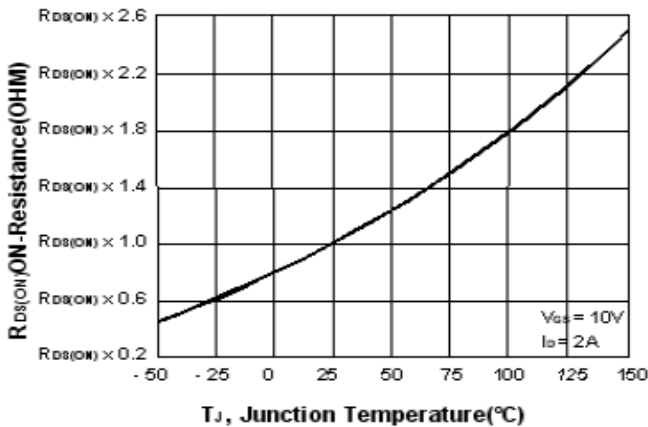
**Output Characteristics**



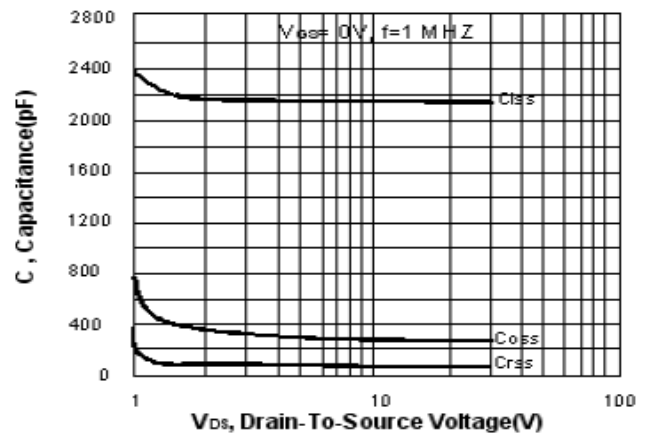
**Transfer Characteristics**



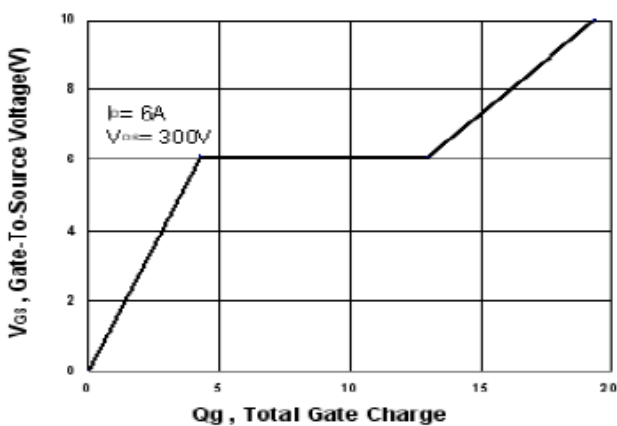
**On-Resistance VS Temperature**



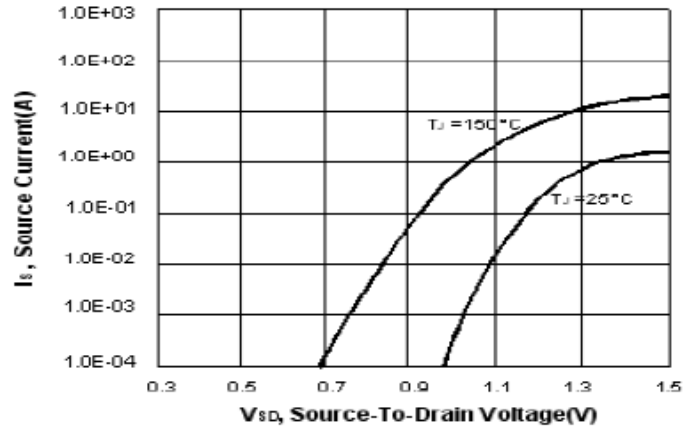
**Capacitance Characteristic**



**Gate charge Characteristics**

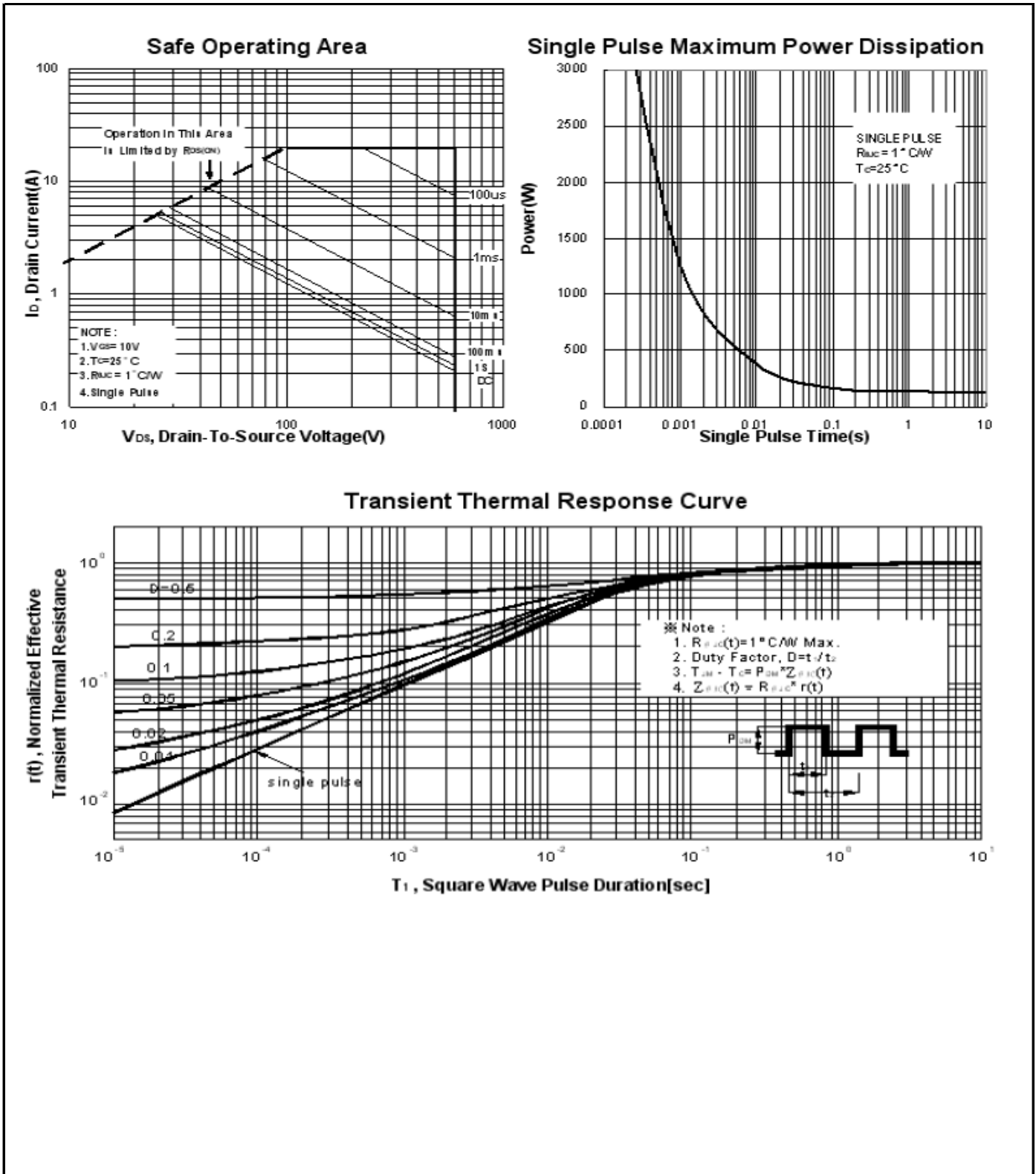


**Source-Drain Diode Forward Voltage**



# P0460AS / P0460AT

## N-Channel Enhancement Mode MOSFET



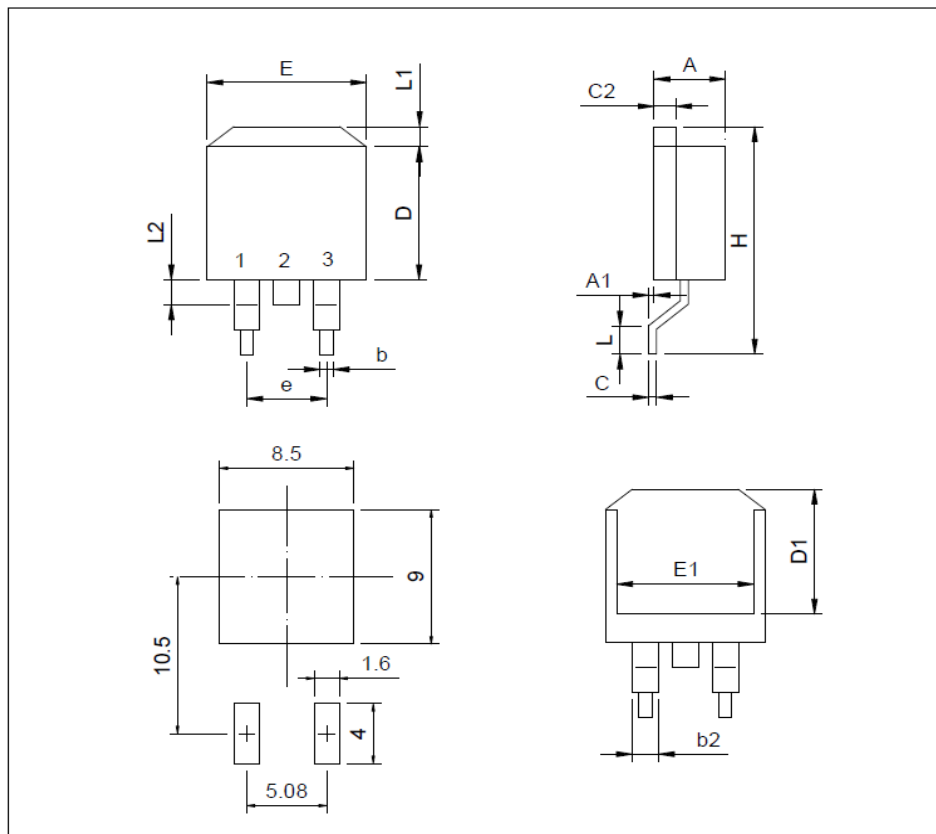
# P0460AS / P0460AT

## N-Channel Enhancement Mode MOSFET

### Package Dimension

### TO-263 (D<sup>2</sup>PAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.2		4.8	e	4.08	5.08	6.08
A1	0		0.3	E	9.8		10.55
b	0.71		1.06	E1	6.9		8.7
b2	1.07		1.47	H	14.2		15.8
C	0.3		0.69	L	1.2		2.79
C2	1.15		1.45	L1	1		1.65
D	8.3		9.4	L2	1.2		1.78
D1	6.37		8.23				



**P0460AS / P0460AT**  
**N-Channel Enhancement Mode MOSFET**

**Package Dimension**

**TO-220 (3-Lead) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.652	10.16	11.5	H	2.04	2.54	3.04
B	2.54	2.79	3.048	I	1.15	1.52	1.778
C	17.3		22.86	J	3.556	4.57	4.826
D	26.924	29.03	31.242	K	0.508	1.3	1.45
E	14.224	15.45	16.510	L	1.89	2.69	3.09
F	8.382	9.20	9.40	M	0.34	0.5	0.6
G	0.381	0.81	1.016	N			

