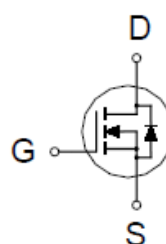
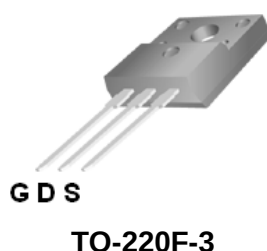


P1308ATFG

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
75V	13m Ω @ $V_{GS} = 10V$	48A



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	I_D	48	A
	$T_C = 100\text{ }^\circ\text{C}$		30	
Pulsed Drain Current ¹		I_{DM}	160	
Avalanche Current		I_{AS}	40	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	80	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	54	W
	$T_C = 100\text{ }^\circ\text{C}$		21.7	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Lead Temperature ($1/16$ " from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.3	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	
Case-to-Heatsink	$R_{\theta CS}$	0.5		

¹Pulse width limited by maximum junction temperature.

P1308ATFG

N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, 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	75			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.5	2.3	4.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±250	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
		V _{DS} = 60V, V _{GS} = 0V, T _J = 125 °C			10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	160			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 40A		10.5	13	mΩ
Forward Transconductance ¹	g _{fs}	V _{DS} = 50V, I _D = 40A		38		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz		5160		pF
Output Capacitance	C _{oss}			833		
Reverse Transfer Capacitance	C _{rss}			246		
Total Gate Charge ²	Q _g	V _{DS} = 60V, V _{GS} = 10V, I _D = 40A		93		nC
Gate-Source Charge ²	Q _{gs}			30		
Gate-Drain Charge ²	Q _{gd}			33		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = 40V, I _D ≅ 40A, V _{GS} = 10V, R _{GS} = 2.5Ω		15		nS
Rise Time ²	t _r			65		
Turn-Off Delay Time ²	t _{d(off)}			50		
Fall Time ²	t _f			50		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)						
Continuous Current	I _S				48	A
Pulsed Current ³	I _{SM}				160	
Forward Voltage ¹	V _{SD}	I _F = 40A, V _{GS} = 0V			1.4	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		100		nS
Peak Reverse Recovery Current	I _{RM(REC)}			200		A
Reverse Recovery Charge	Q _{rr}			410		nC

¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

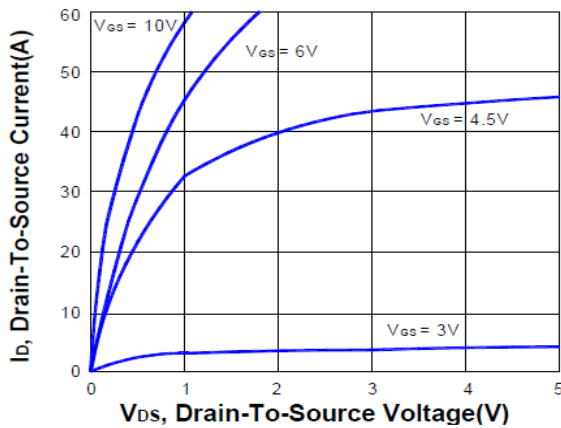
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

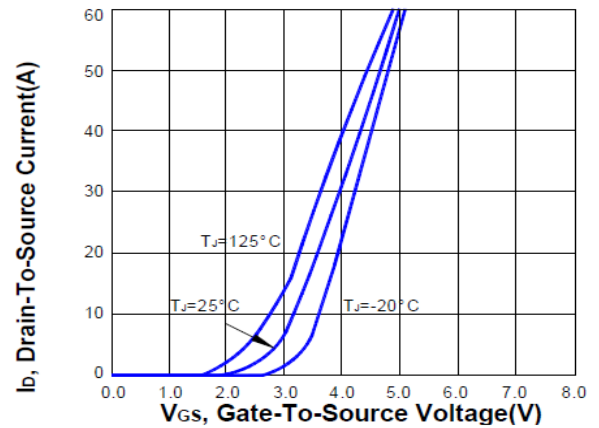
P1308ATFG

N-Channel Enhancement Mode MOSFET

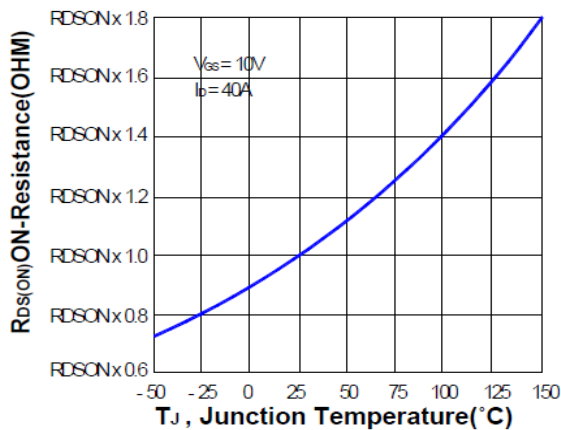
Output Characteristics



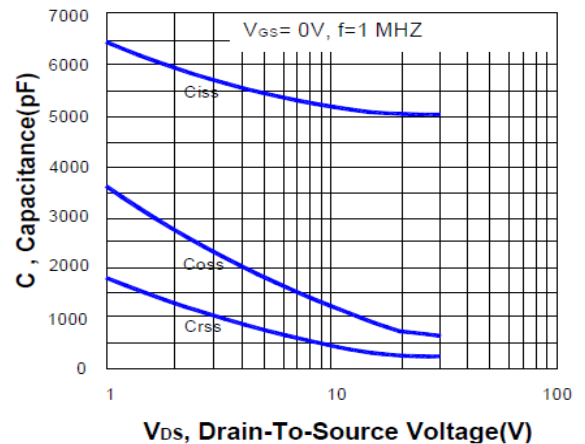
Transfer Characteristics



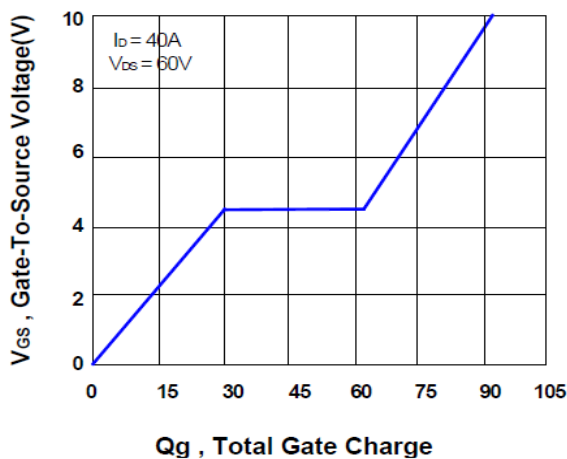
On-Resistance VS Drain Current



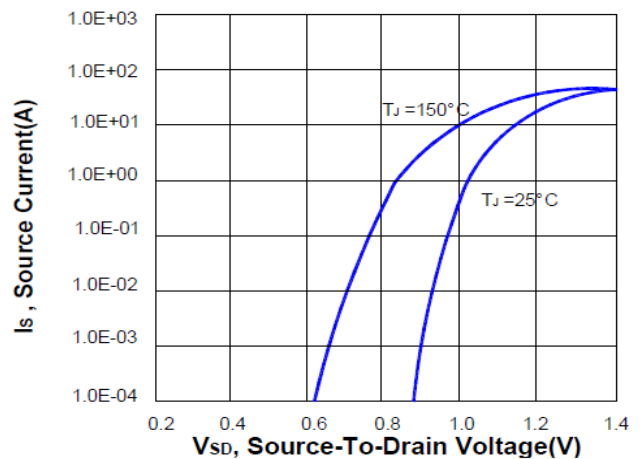
Capacitance Characteristics



Gate Charge



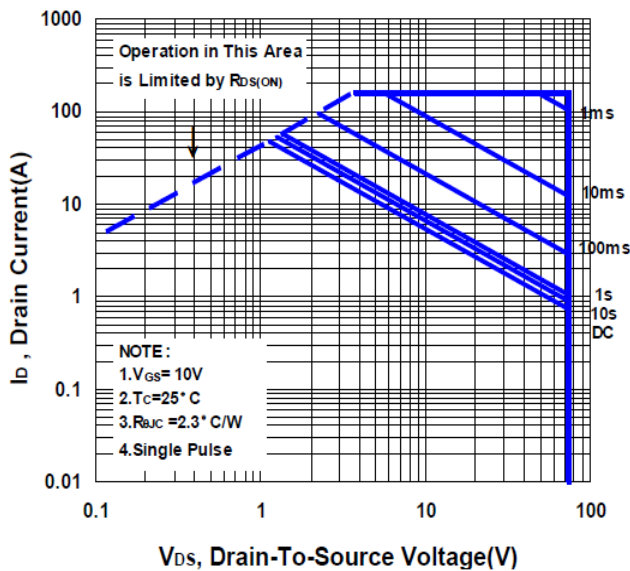
Source-Drain Forward Voltage



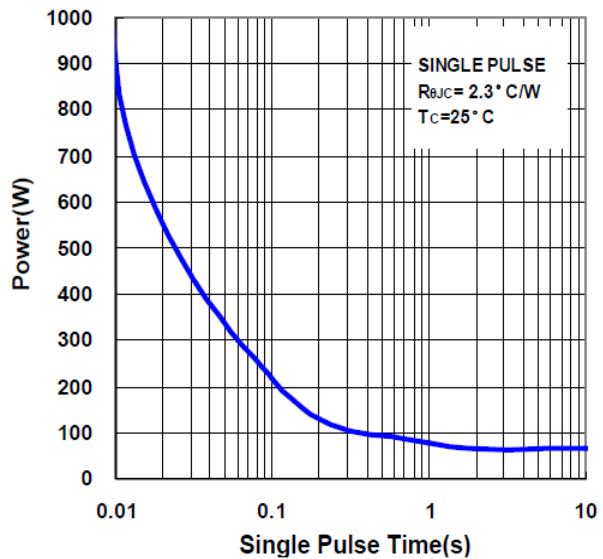
P1308ATFG

N-Channel Enhancement Mode MOSFET

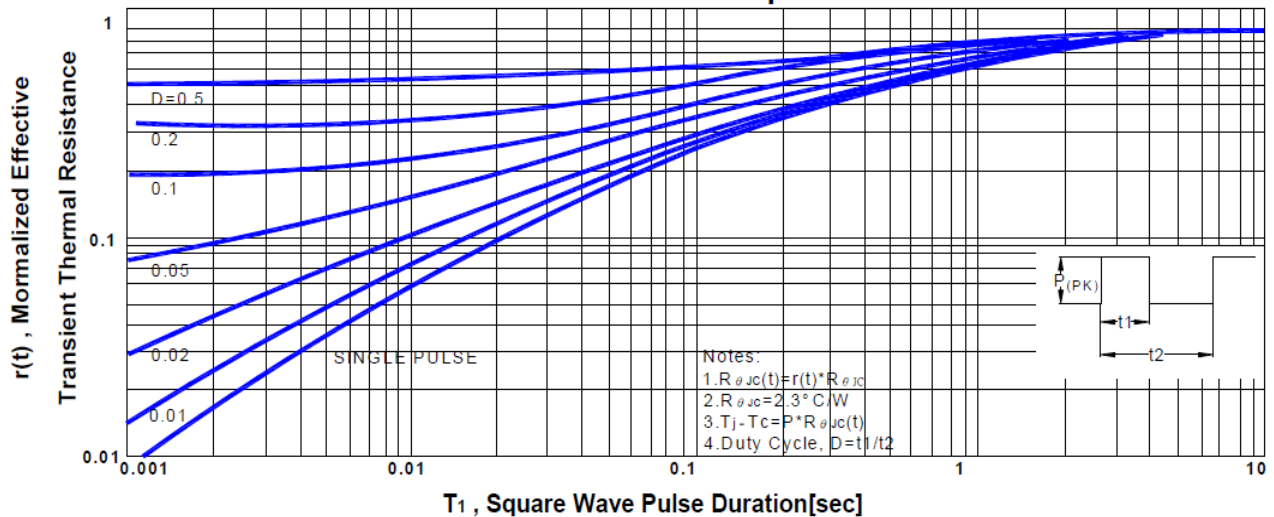
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



P1308ATFG

N-Channel Enhancement Mode MOSFET

Package Dimension

TO-220F (3-Lead) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.2		4.93	e	2.05	2.55	3.05
A1	2.34		3.1	F	27.45		30.6
B	17.77		20.3	G	7.72		9.3
b	0.6		1.05	H	6.1		7.1
b1	0.9	1.23	1.62	L	12.5		14.5
b2	0.6		1.9	L1	1.97		3.8
c	0.4		1.0	P	2.98		3.4
D	14.7		16.4	Q	2.1		2.96
D1	6.4		7.5	q	3.0		3.8
E	9.7		10.4				

