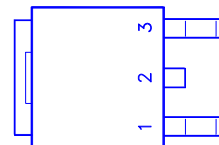
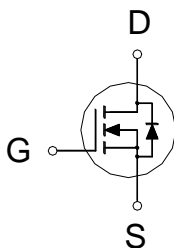


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
60V	36m Ω	22A



1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	I_D	22	A
	$T_C = 100\text{ }^\circ\text{C}$		14	
Pulsed Drain Current ¹		I_{DM}	45	
Avalanche Current		I_{AS}	18	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	16	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	39	W
	$T_C = 100\text{ }^\circ\text{C}$		15.6	
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	$R_{\theta JC}$		3.2	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.3	1.8	2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48\text{V}, V_{GS} = 0\text{V}$			1	μA
		$V_{DS} = 40\text{V}, V_{GS} = 0\text{V}, T_J = 125\text{ }^\circ\text{C}$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5\text{V}, I_D = 15\text{A}$		34	47	m Ω
		$V_{GS} = 10\text{V}, I_D = 20\text{A}$		31	36	

N-Channel Enhancement Mode Field Effect Transistor

P3606BD

TO-252

Halogen-Free & Lead-Free

Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$	30	S
DYNAMIC				
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$	545	pF
Output Capacitance	C_{oss}		74	
Reverse Transfer Capacitance	C_{rss}		44	
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	1.8	Ω
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 30V, I_D = 20A$	13.8	nC
	$Q_{g(VGS=4.5V)}$		7.9	
Gate-Source Charge ²	Q_{gs}		2	
Gate-Drain Charge ²	Q_{gd}		4.9	
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DS} = 30V$ $I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$	
Rise Time ²	t_r	11		
Turn-Off Delay Time ²	$t_{d(off)}$	33		
Fall Time ²	t_f	10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)				
Continuous Current	I_S		22	A
Forward Voltage ¹	V_{SD}	$I_F = 20A, V_{GS} = 0V$	1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 20A, di_F/dt = 100A / \mu S$	17.6	nS
Reverse Recovery Charge	Q_{rr}		8.8	nC

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

²Independent of operating temperature.

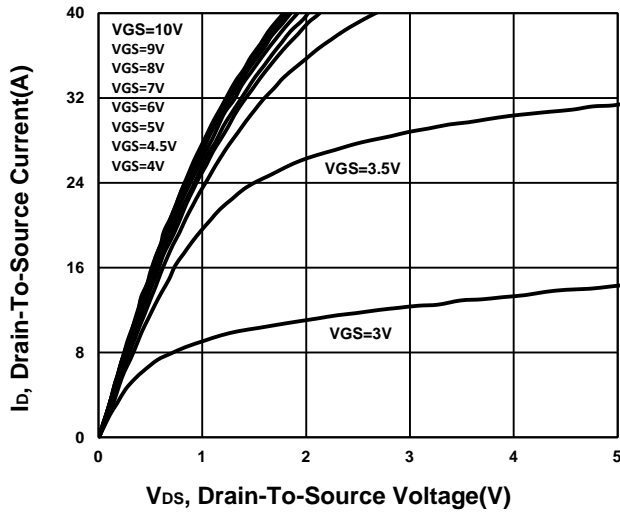
N-Channel Enhancement Mode Field Effect Transistor

P3606BD

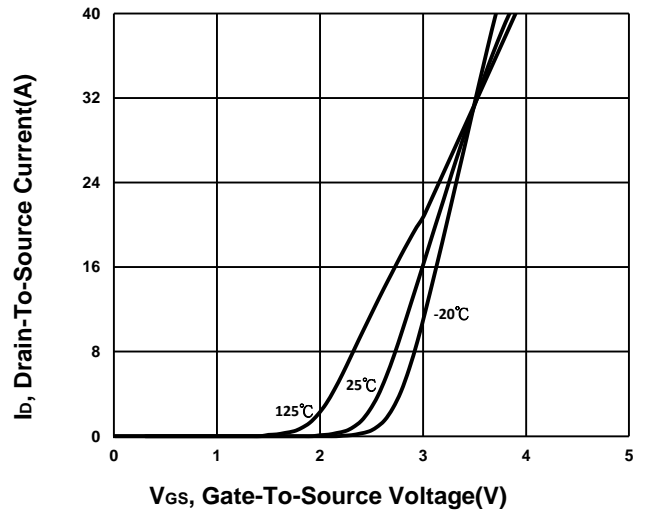
TO-252

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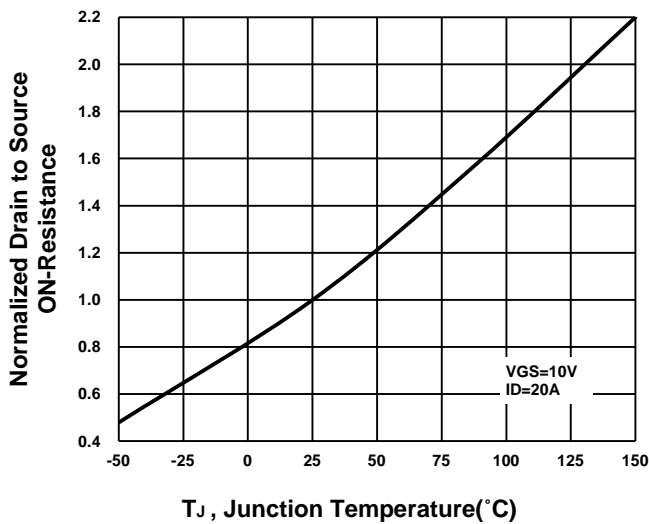
Output Characteristics



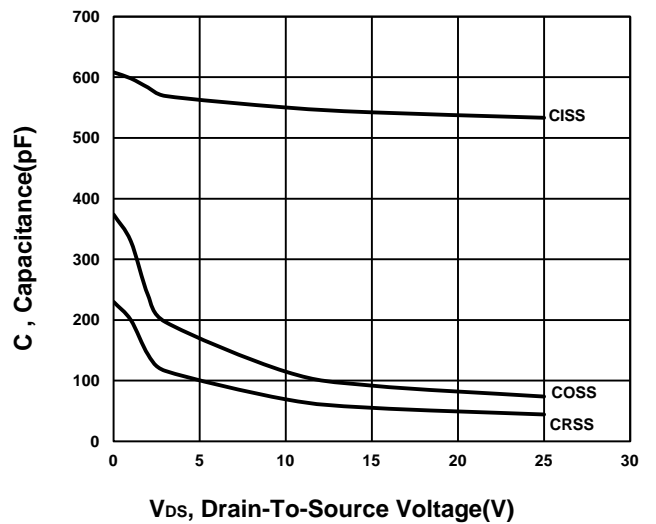
Transfer Characteristics



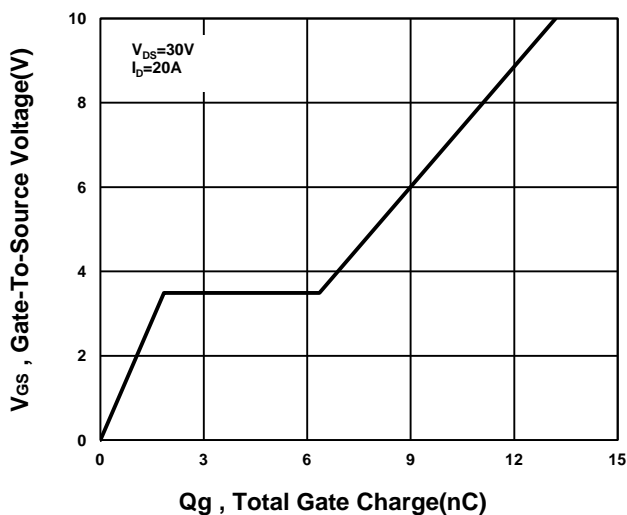
On-Resistance VS Temperature



Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage

