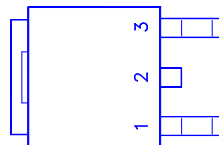
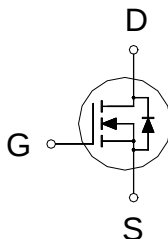


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	8m Ω	50A



1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	I_D	50	A
	$T_C = 100\text{ }^\circ\text{C}$		35	
Pulsed Drain Current ¹		I_{DM}	100	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	50	W
	$T_C = 100\text{ }^\circ\text{C}$		30	
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	$R_{\theta JC}$		2.5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.5	2.0	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_C = 125\text{ }^{\circ}C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	50			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 20A$		10.5	14	m Ω
		$V_{GS} = 5V, I_D = 20A$		9.2	12.2	
		$V_{GS} = 10V, I_D = 20A$		6.5	8	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 20A$		25		S

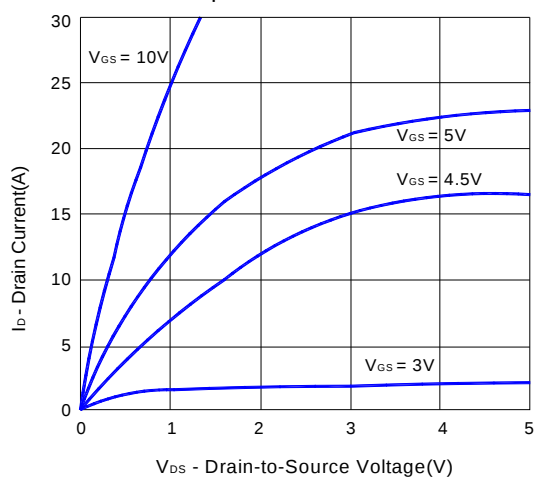
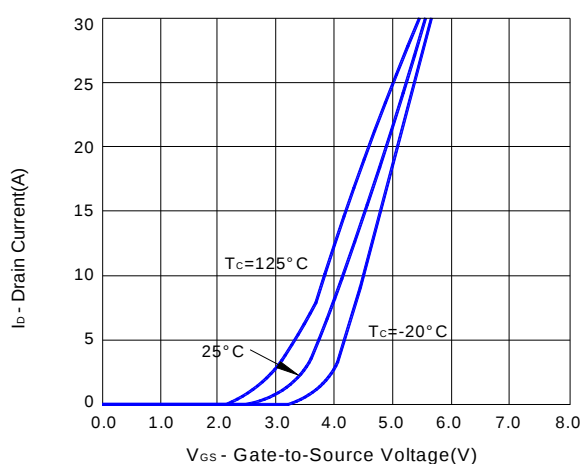
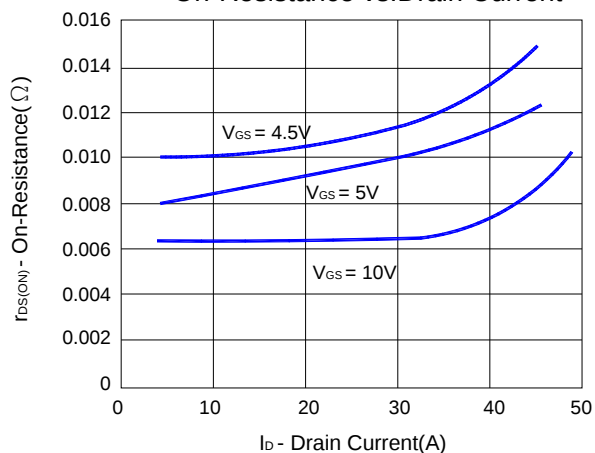
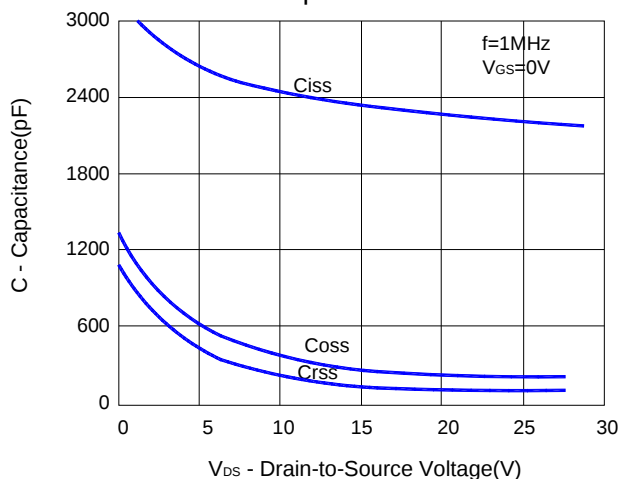
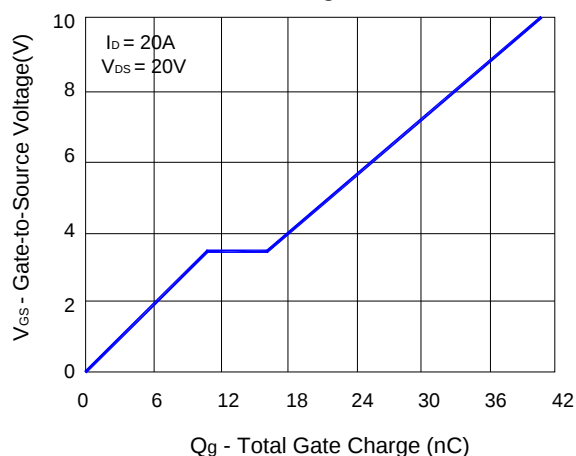
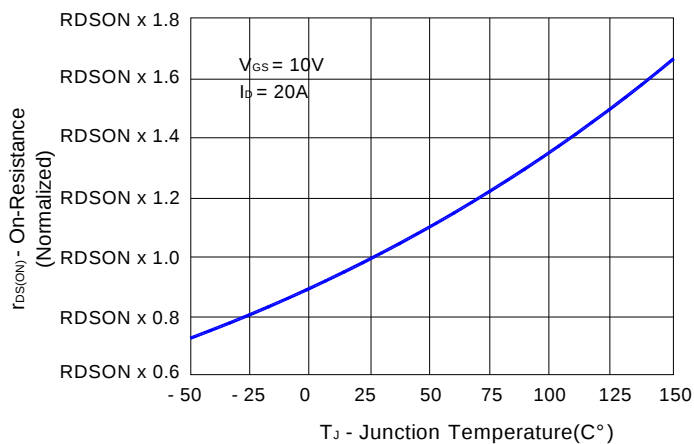
DYNAMIC						
Input Capacitance	C _{iSS}	V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		2300	2750	pF
Output Capacitance	C _{oSS}			300	370	
Reverse Transfer Capacitance	C _{rSS}			195	240	
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = 10V, I _D = 20A		42	50	nC
Gate-Source Charge ²	Q _{gs}			10	14	
Gate-Drain Charge ²	Q _{gd}			6	10	
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.8	2.4	Ω
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 20V, R _L = 1 Ω I _D ≅ 20A, V _{GS} = 10V, R _{GEN} = 6 Ω		19	35	nS
Rise Time ²	t _r			18	33	
Turn-Off Delay Time ²	t _{d(off)}			58	100	
Fall Time ²	t _f			20	35	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				50	A
Pulsed Current ³	I _{SM}				100	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = 20 A, dI _F /dt = 100A / μS		32		nS
Reverse Recovery Charge	Q _{rr}			29		nC

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

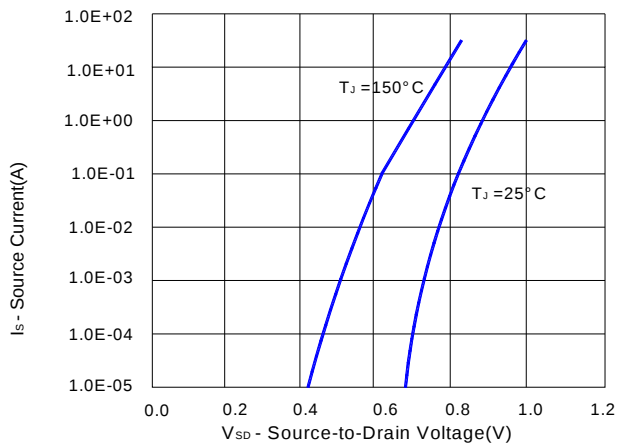
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

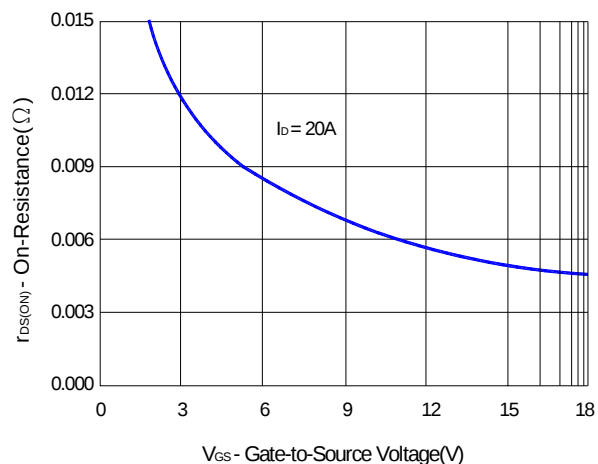
REMARK: THE PRODUCT MARKED WITH "P0804BD", DATE CODE or LOT #

TYPICAL PERFORMANCE CHARACTERISTICS
Output Characteristics

Transfer Characteristics

On-Resistance vs. Drain Current

Capacitance

Gate Charge

On-Resistance vs. Junction Temperature


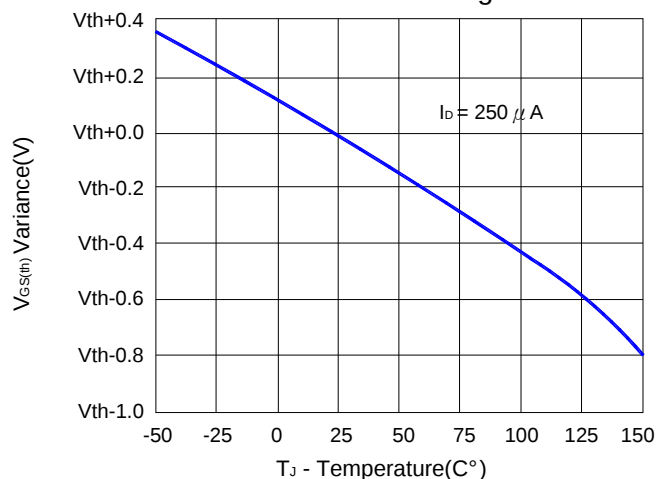
Source - Drain Diode Forward Voltage



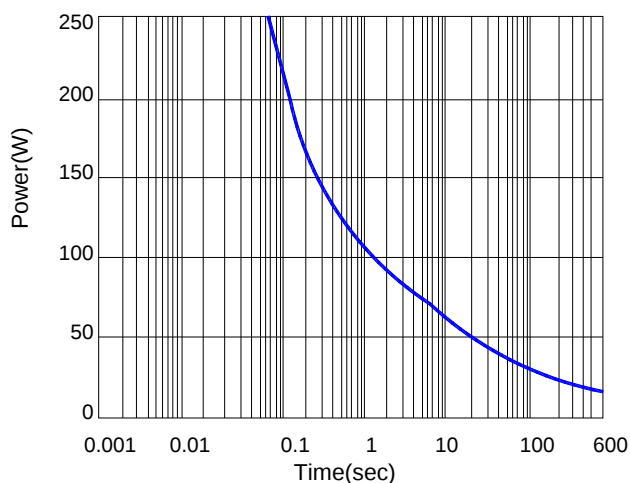
On-Resistance vs. Gate-to-Source Voltage



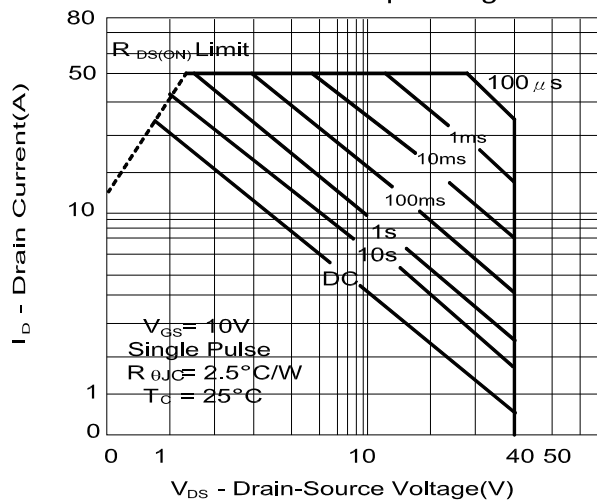
Threshold Voltage

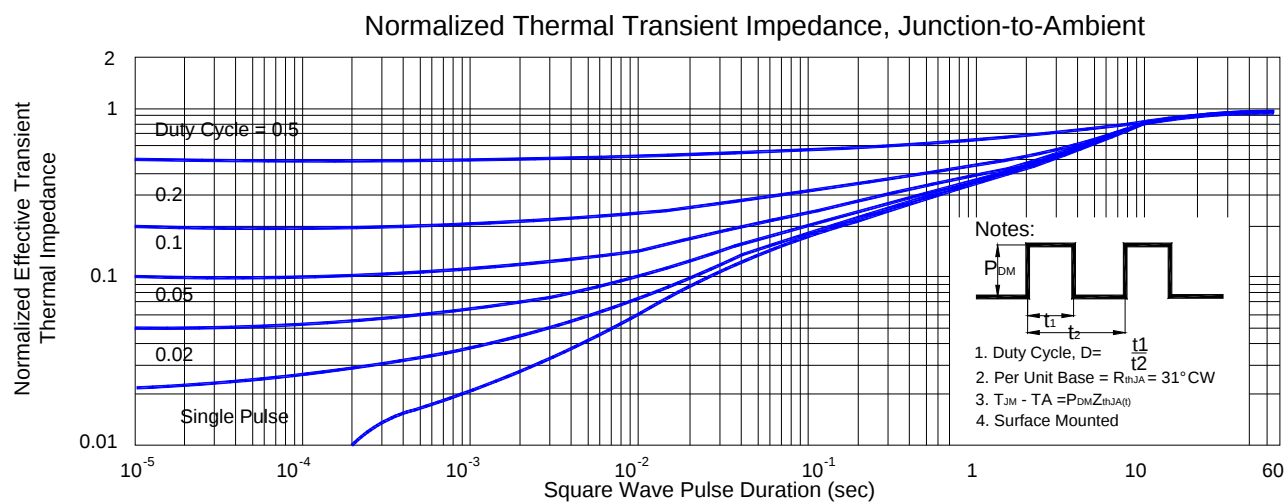


Single Pulse Power



Maximum Safe Operating Area





TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	9.5	10.4	H	0.8	1.27	2.03
B	2.19	2.3	2.435	I	6.35	6.6	6.8
C	0.35	0.5	0.65	J	4.8	5.34	5.5
D	0.89		1.5	K	0.5		1.5
E	0.35		0.65	L	0.4	0.76	0.89
F	0.0		0.23	M	3.96		5.18
G	5.4		6.2	N			

