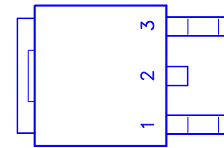
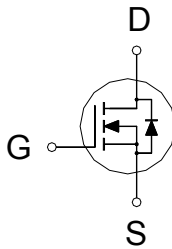


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	28m Ω	25A



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
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	I_D	25	A
	$T_C = 100\text{ }^\circ\text{C}$		16	
Pulsed Drain Current ¹		I_{DM}	75	
Avalanche Current		I_{AS}	26	
Avalanche Energy	L = 0.1mH	E_{AS}	34	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	31	W
	$T_C = 100\text{ }^\circ\text{C}$		12.5	
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	$R_{\theta JC}$		4	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		50	

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu\text{A}$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1	2	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	75			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 18A$		15	28	m Ω
		$V_{GS} = 5V, I_D = 12A$		27	50	

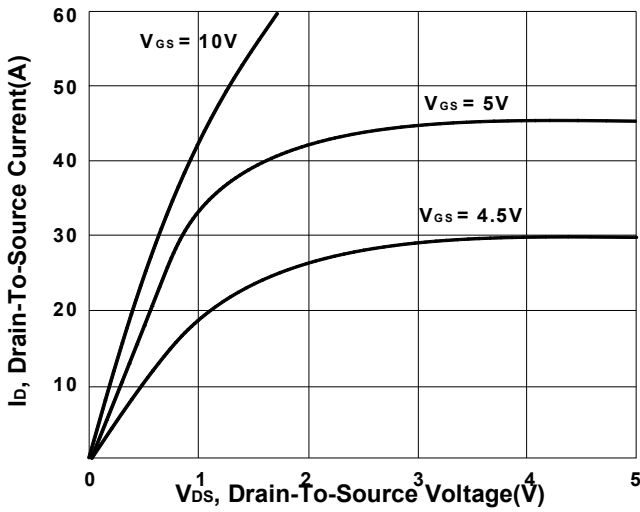
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 18A$		25		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		814		pF
Output Capacitance	C_{oss}			172		
Reverse Transfer Capacitance	C_{rss}			121		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.6		Ω
Total Gate Charge ²	Q_g	$V_{DS} = 20V, V_{GS} = 10V, I_D = 18A$		17		nC
Gate-Source Charge ²	Q_{gs}			4		
Gate-Drain Charge ²	Q_{gd}			5		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 20V, I_D \cong 18A, V_{GS} = 10V, R_{GEN} = 6\Omega$		4		nS
Rise Time ²	t_r			8		
Turn-Off Delay Time ²	$t_{d(off)}$			14		
Fall Time ²	t_f			4		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25^\circ C$)						
Forward Voltage ¹	V_{SD}	$I_S = 18A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}			23		nS
Reverse Recovery Charge	Q_{rr}			19		nC

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

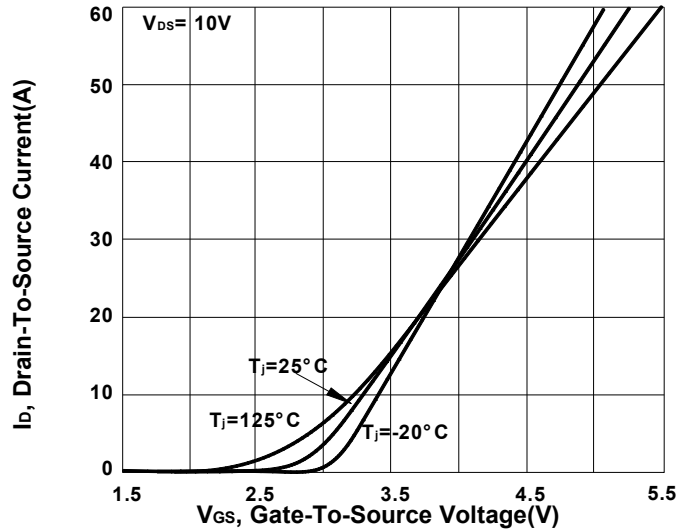
²Independent of operating temperature.

REMARK: THE PRODUCT MARKED WITH "P2804BDG", DATE CODE or LOT #

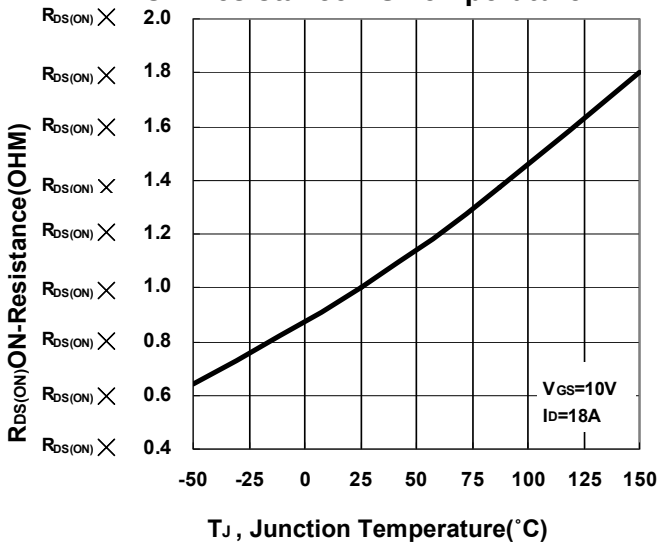
Output Characteristics



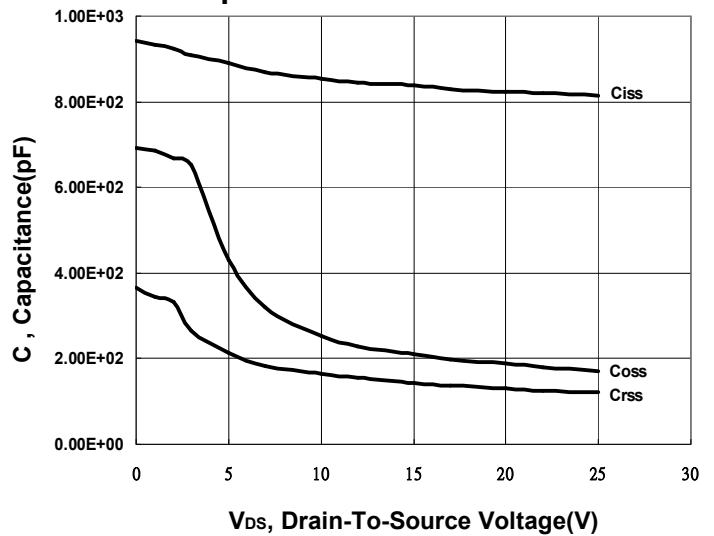
Transfer Characteristics



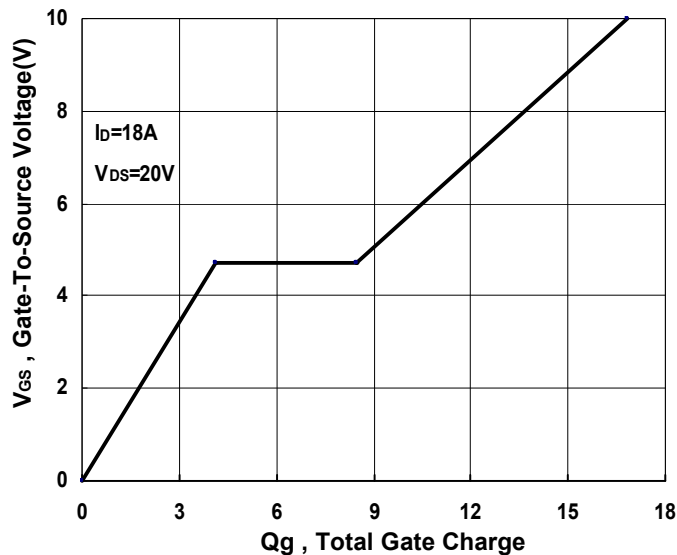
On-Resistance VS Temperature



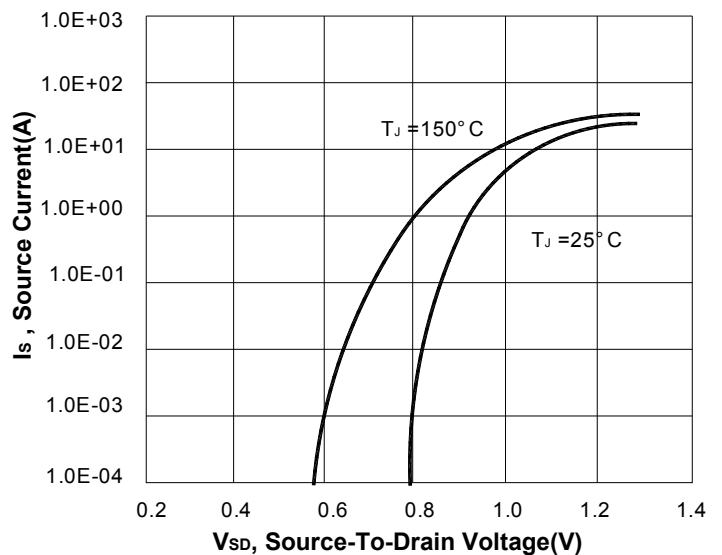
Capacitance Characteristic



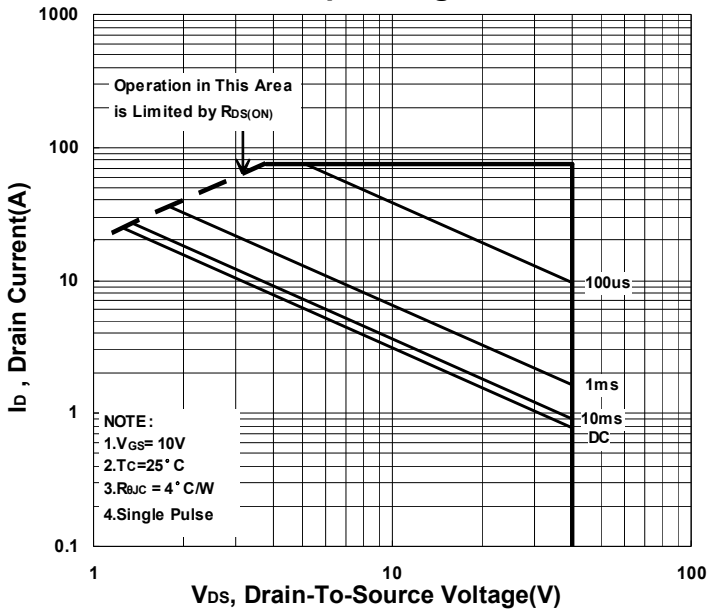
Gate charge Characteristics



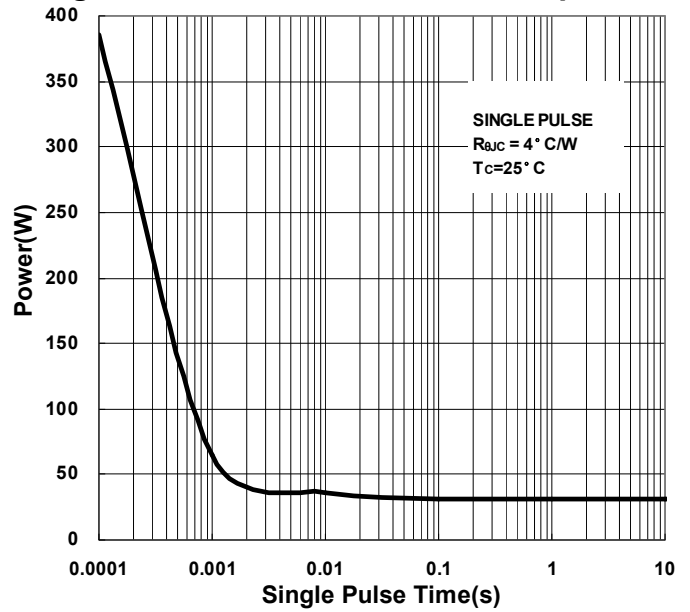
Source-Drain Diode Forward Voltage



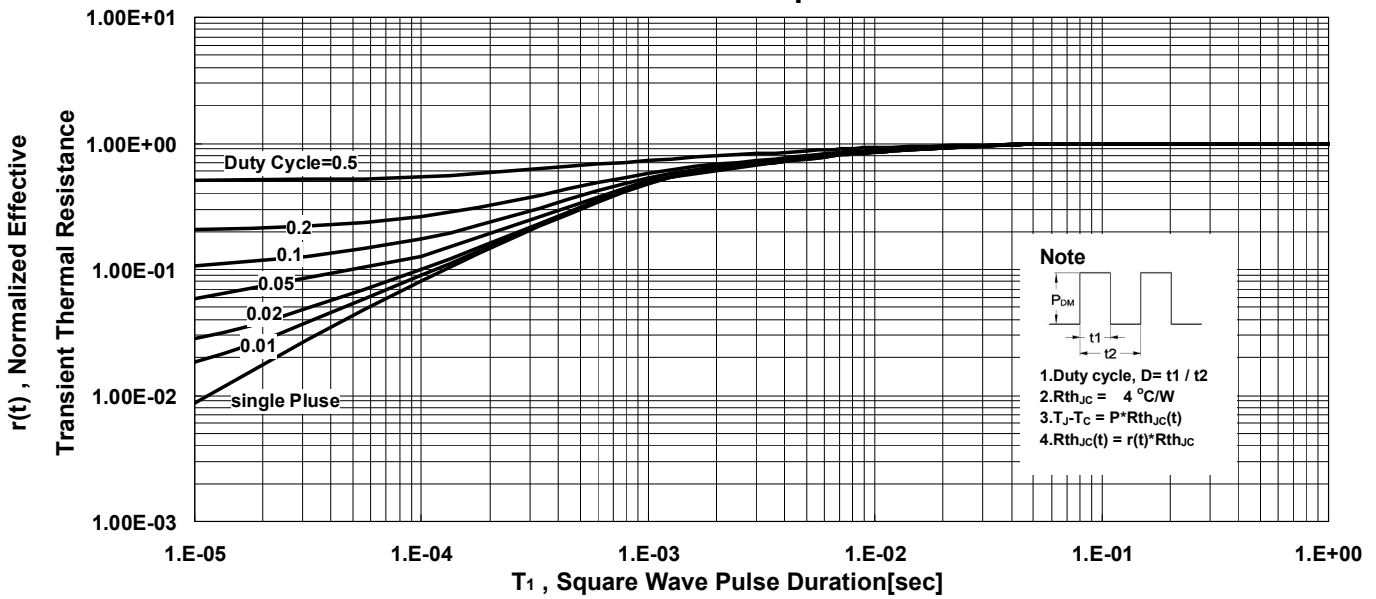
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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			

