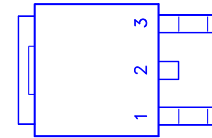
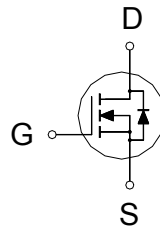


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
25V	20mΩ	32A



1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	25	V
Gate-Source Voltage		$V_{GS}$	±20	V
Continuous Drain Current	$T_C = 25\text{ °C}$	$I_D$	32	A
	$T_C = 100\text{ °C}$		20	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	110	
Avalanche Current		$I_{AS}$	23	
Avalanche Energy	$L = 0.1\text{mH}$	$E_{AS}$	27	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	35	W
	$T_C = 100\text{ °C}$		14	
Operating Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		3.6	°C / W
Junction-to-Ambient	$R_{\theta JA}$		75	
Case-to-Heatsink	$R_{\theta CS}$	0.7		

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

<sup>2</sup>Duty cycle ≤ 1%

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	25			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.8	2.5	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			±250	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			25	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125\text{ °C}$			250	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	110			A

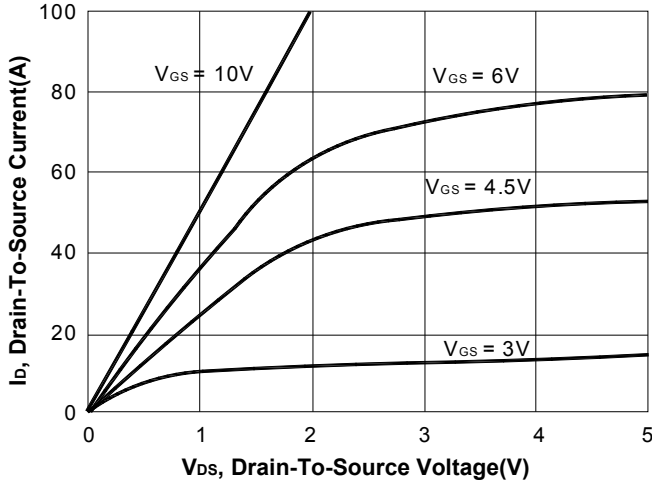
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 10A$	29	41	mΩ
		$V_{GS} = 10V, I_D = 15A$	14	20	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 15A$	19		S
<b>DYNAMIC</b>					
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$	492		pF
Output Capacitance	$C_{oss}$		221		
Reverse Transfer Capacitance	$C_{rss}$		187		
Gate Resistance	$R_g$	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	1.5		Ω
Total Gate Charge <sup>2</sup>	$Q_g(V_{GS}=10V)$	$V_{DS} = 15V, I_D = 15A$	14.7		nC
	$Q_g(V_{GS}=4.5V)$		7.7		
Gate-Source Charge <sup>2</sup>	$Q_{gs}$		2.3		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$		5.6		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$		$V_{DD} = 15V$ $I_D \cong 15A, V_{GS} = 10V, R_{GS} = 6\Omega$	10	
Rise Time <sup>2</sup>	$t_r$	17			
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$	34			
Fall Time <sup>2</sup>	$t_f$	27			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>c</sub> = 25 °C)</b>					
Continuous Current	$I_S$			25	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 15A, V_{GS} = 0V$		1.4	V
Reverse Recovery Time	$t_{rr}$	$I_F = 15A, di_F/dt = 100A / \mu S$	27		nS
Reverse Recovery Charge	$Q_{rr}$		36		nC

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

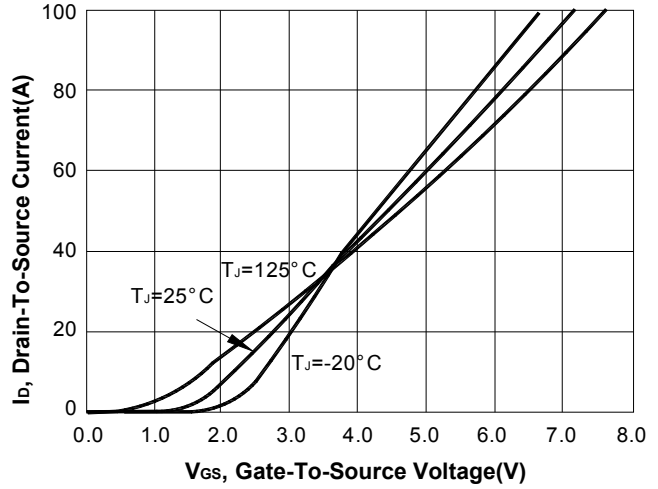
<sup>2</sup>Independent of operating temperature.

**REMARK: THE PRODUCT MARKED WITH “P2003BDG”, DATE CODE or LOT #**

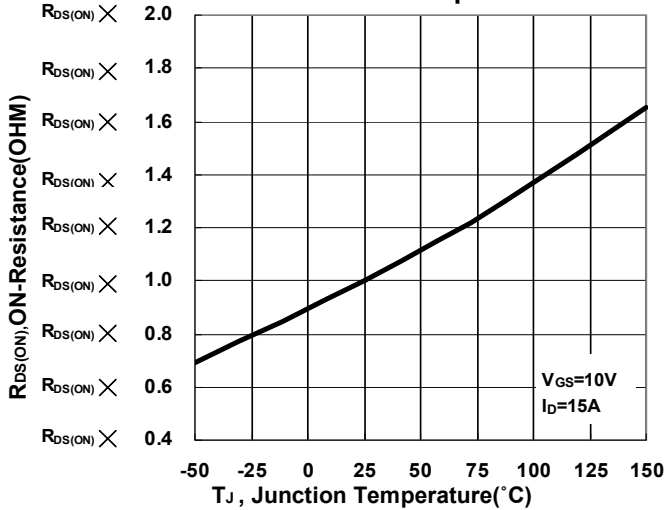
**Output Characteristics**



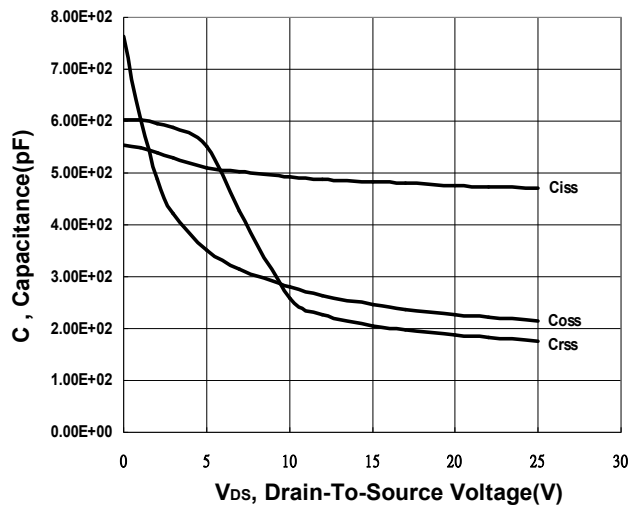
**Transfer Characteristics**



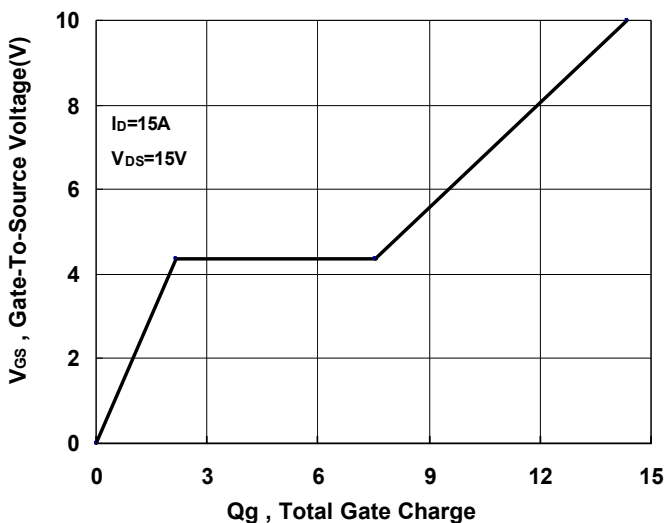
**On-Resistance VS Temperature**



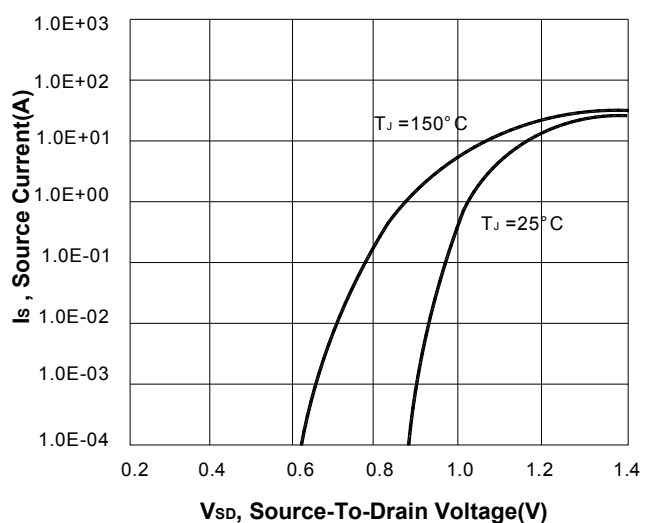
**Capacitance Characteristic**



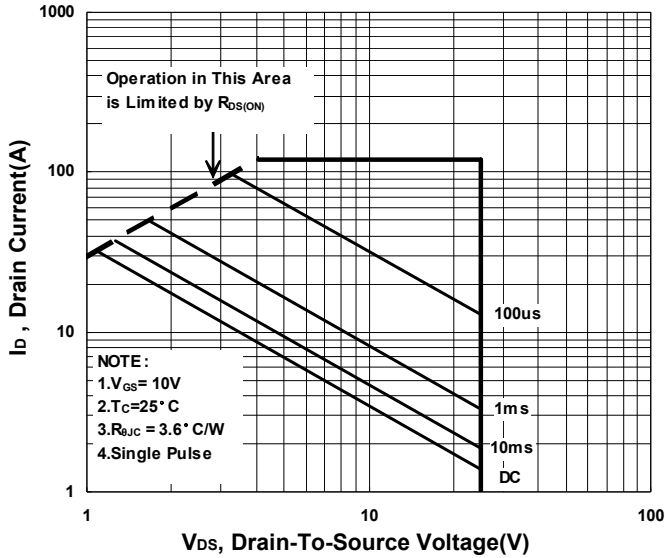
**Gate charge Characteristics**



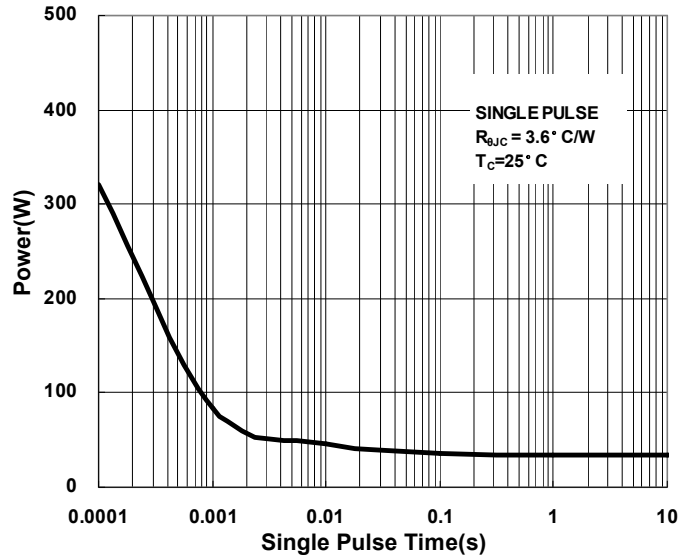
**Source-Drain Diode Forward Voltage**



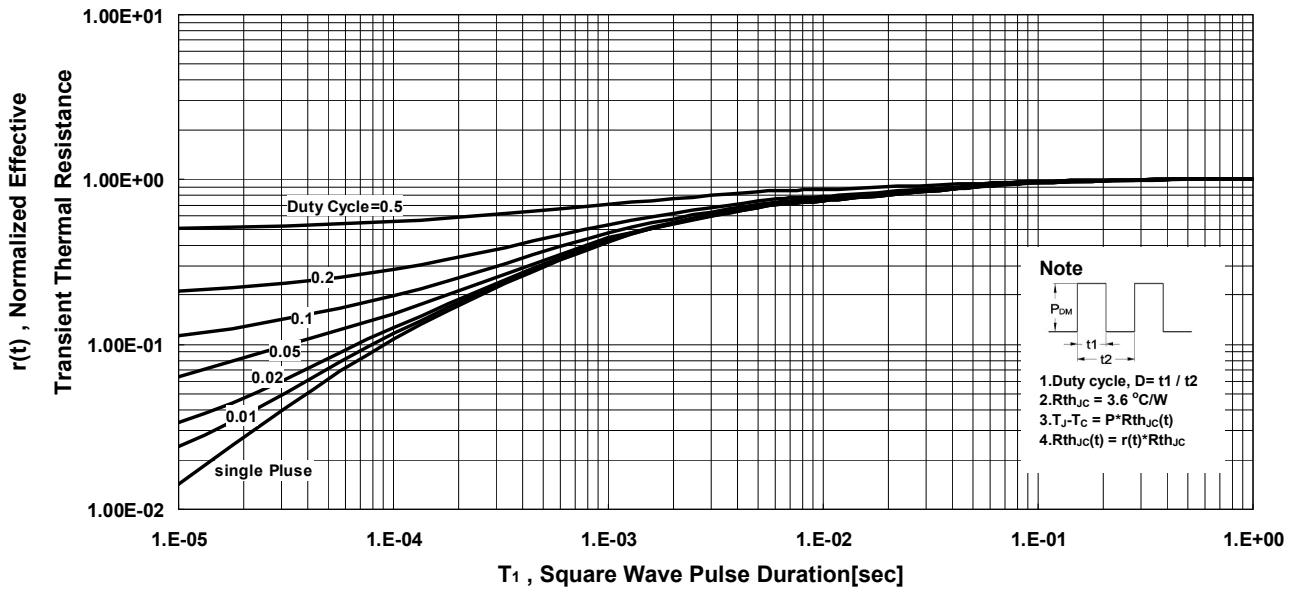
**Safe Operating Area**



**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	W	3.38	3.58	3.78

