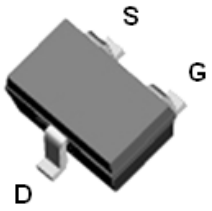
UNIKC Semiconductor

PZD502CYB

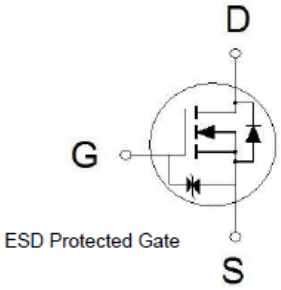
N-Channel Logic Level Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	450mΩ @V_{GS} = 4.5V	0.7A



SOT-523



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current	T_A = 25 °C	I_D	0.7	A
	T_A = 70 °C		0.6	
Pulsed Drain Current[1]		I_{DM}	2	
Power Dissipation	T_A = 25 °C	P_D	0.4	W
	T_A= 70 °C		0.2	
ESD Class	HBM		2	KV
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[2]	$R_{\theta JA}$		280	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]The value of $R_{\theta JA}$ is measureed with the device mounted on 1in^2 FR-4 board with 2oz.Copper, in a still air environment with T_A =25°C.The value in any given application depends on the user's specific board design.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °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	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.35	0.6	1	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V			±30	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
		V_{DS} = 10V, V_{GS} = 0V , T_J = 55 °C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 1.8V, I_D = 0.35A		426	850	mΩ
		V_{GS} = 2.5V, I_D = 0.5A		299	765	
		V_{GS} = 4.5V, I_D = 0.6A		245	450	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 0.6A		2		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz		38		pF
Output Capacitance	C_{oss}			16		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge[2]	Q_g	V_{DS} = 10V, V_{GS} = 4.5V I_D = 0.6A		1.4		nC
Gate-Source Charge[2]	Q_{gs}			0.4		
Gate-Drain Charge[2]	Q_{gd}			0.8		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 6V, $I_D \cong$ 0.6A V_{GS}= 4.5V,R_{GS}= 6Ω		6		nS
Rise Time[2]	t_r			18		
Turn-Off Delay Time[2]	$t_{d(off)}$			30		
Fall Time[2]	t_f			25		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				0.7	A
Forward Voltage[1]	V_{SD}	I_F = 0.15A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	V_{DS}= 12V I_F = 2A , dI_F/dt = 100A / μS		233		nS
Reverse Recovery Charge	Q_{rr}			630		nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

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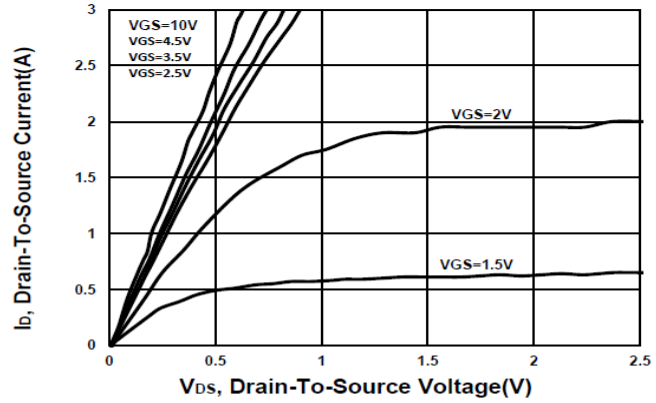
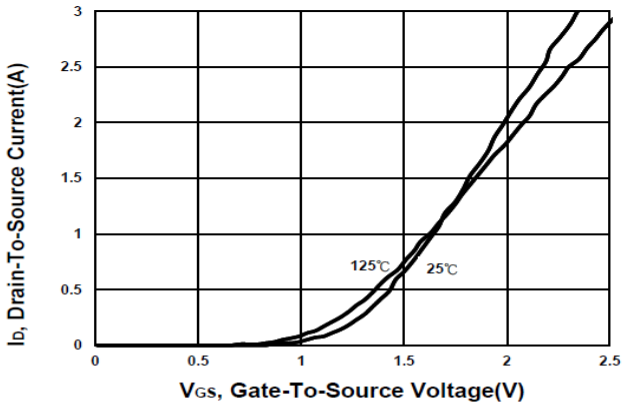
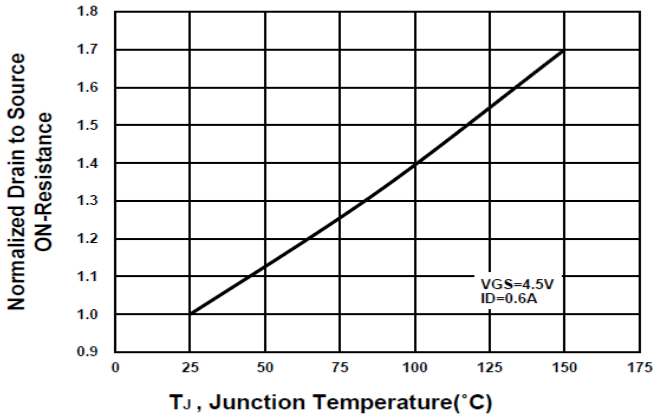
Output Characteristics



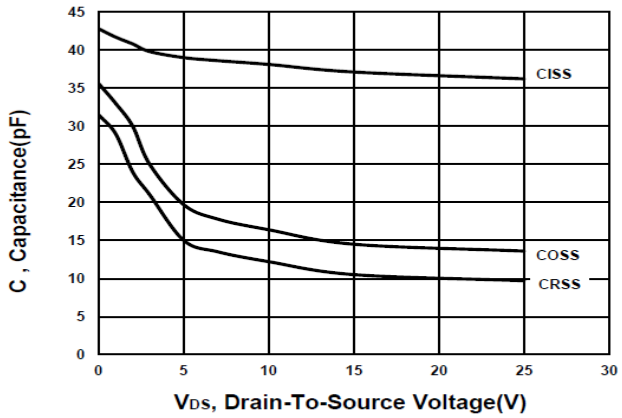
Transfer Characteristics



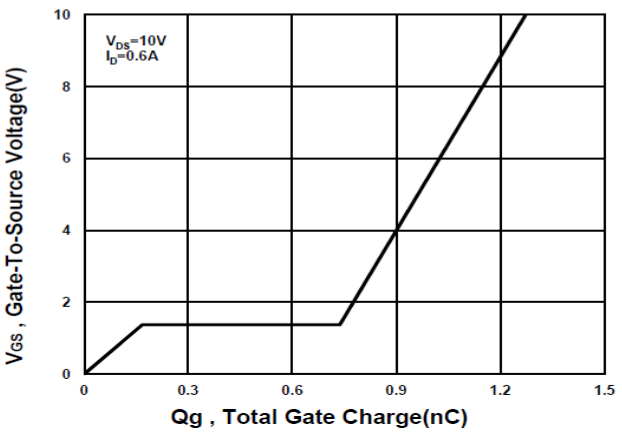
On-Resistance VS Temperature



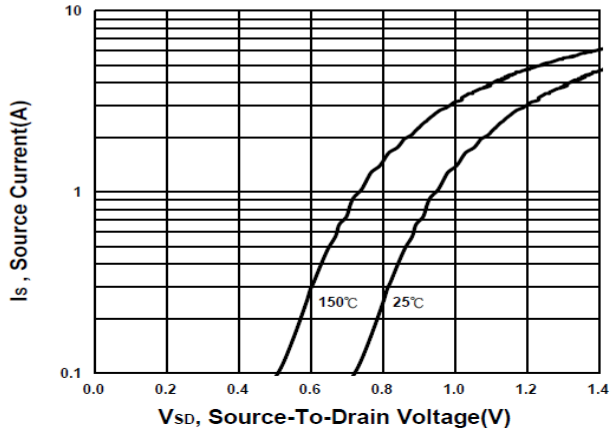
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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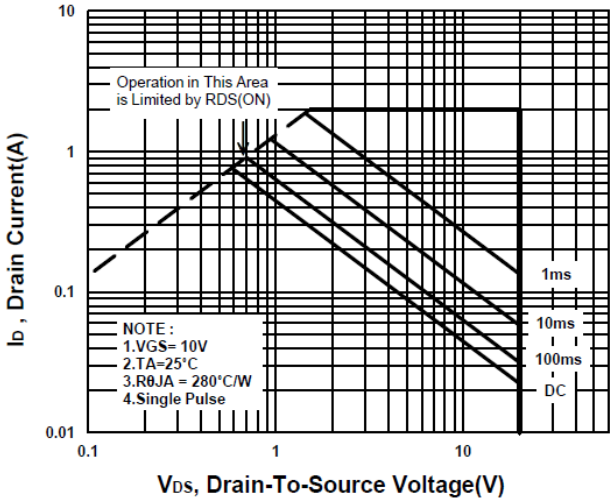
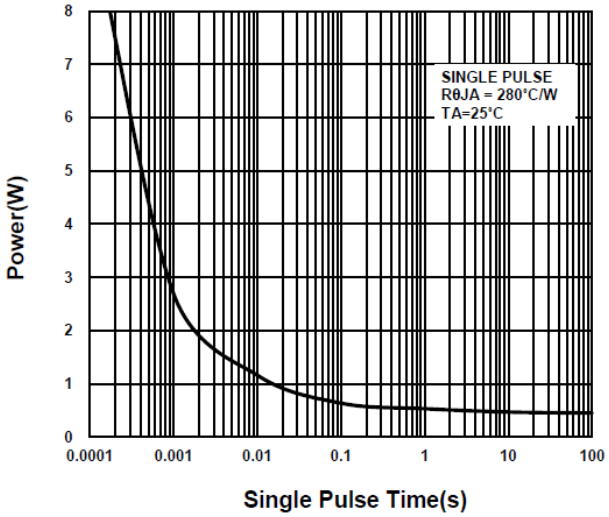
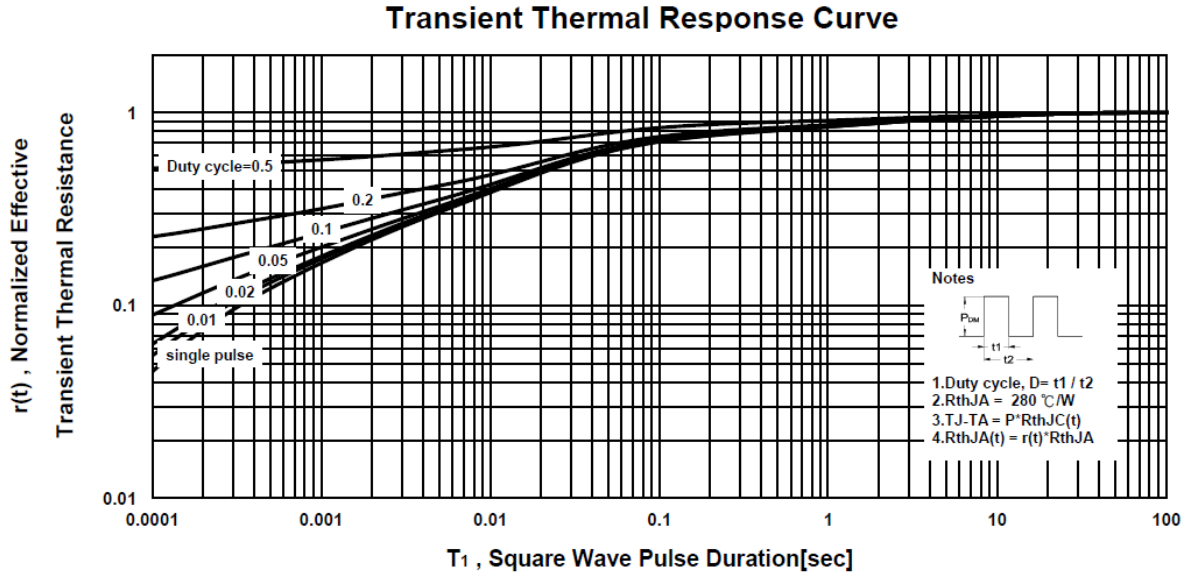
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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SOT-523 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.5		1.7	H	0.1		0.2
B	0.9		1.1	J	0		0.1
C	0.15		0.25	K	0.7		0.9
D	1.45		1.75	L		0.55	
E	0.25		0.325	M	0.28		0.44
F		0.5		N	0.75		0.85
G	0.7		0.8