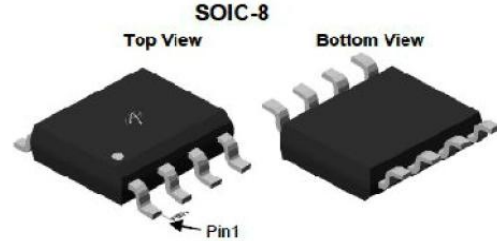


Y2N 655S——60V 10A N-Channel MOSFET Power MOSFET (2 IN 1)

General Features

- Proprietary New Trench Technology
- Ultra-low Miller Charge
- $R_{DS(ON)}$, typ.=43mΩ@VGS=10V
- Low Gate Charge Minimize Switching Loss
- Fast Recovery Body Diode

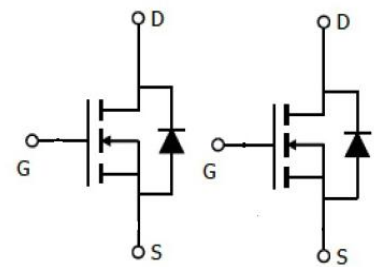
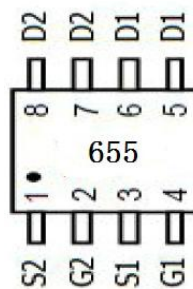


Applications

- High efficiency DC/DC Converters
- Synchronous Rectification
- Motor Drive

Ordering Information

Part Number	Package	Marking
Y2N 655S	SOP-8	655



Absolute Maximum Ratings

Absolute Maximum Ratings TA=25°C unless otherwise noted			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20 V	V
Continuous Drain Current	I_D	TA=25°C	16.2
		TA=70°C	6.5
Pulsed Drain Current C	I_{DM}	20	A
Avalanche energy L=0.1mH C	E_{AS}, E_{AR}	10	MJ
Power Dissipation B	P_D	TA=25°C	31.3
		TA=70°C	3.0
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	4.0	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	42	

Electrical Characteristics

OFF Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	60			V	$V_{GS}=0V, I_D=250\mu A$
I_{DSS}	Drain-to-Source Leakage Current			5	μA	$V_{DS}=60V, V_{GS}=0V$
				100	μA	$V_{DS}=48V, V_{GS}=0V, T_J=125^\circ\text{C}$
I_{GSS}	Gate-to-Source Leakage Current			± 10	μA	$V_{GS}=\pm 20V, V_{DS}=0V$

ON Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	51	66	$m\Omega$	$V_{GS}=4.5V, I_D=5A^{[3]}$
		--	43	55	$m\Omega$	$V_{GS}=10V, I_D=5A^{[3]}$
$V_{GS(TH)}$	Gate Threshold Voltage	1.0	1.8	3.0	V	$V_{DS} = V_{GS}, I_D=250\mu A$

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{iss}	Input Capacitance		300		pF	$V_{GS}=0V, V_{DS}=30V, f=1.0MHz$
C_{rss}	Reverse Transfer Capacitance		18			
C_{oss}	Output Capacitance		52			
R_G	Gate Series Resistance		3.1		Ω	$f=1.0MHz$
Q_g	Total Gate Charge		6.0		nC	$V_{DD}=30V, I_D=5A, V_{GS}=10V$
Q_{gs}	Gate-to-Source Charge		1.2			
Q_{gd}	Gate-to-Drain (Miller) Charge		1.1			

Resistive Switching Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(on)}$	Turn-on Delay Time		2.0		ns	$V_{DD}=30V, I_D=5A, V_{GS}=10V, R_G=6\Omega$
t_{rise}	Rise Time		5.6			
$t_{d(off)}$	Turn-off Delay Time		23			
t_{fall}	Fall Time		14			

Source-Drain Body Diode Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
I_{SD}	Continuous Source Current			2.5	A	Maximum Ratings
I_{SM}	Pulsed Source Current			10		
V_{SD}	Diode Forward Voltage		0.85	1.2	V	$I_S=5A, V_{GS}=0V$
t_{rr}	Reverse Recovery Time		29		ns	$V_{GS}=0V, I_F=5A, di/dt=100A/\mu s$
Q_{rr}	Reverse Recovery Charge		24		nC	

Note:

[1] $T_J = +25^\circ\text{C}$ to $+150^\circ\text{C}$

[2] Repetitive rating, pulse width limited by both maximum junction temperature.

[3] Pulse width $\leq 380\mu s$; duty cycle $\leq 2\%$.

Typical Characteristics

$T_J=25^{\circ}\text{C}$ unless otherwise specified

Figure 1. Maximum Effective Thermal Impedance, Junction-to-Case

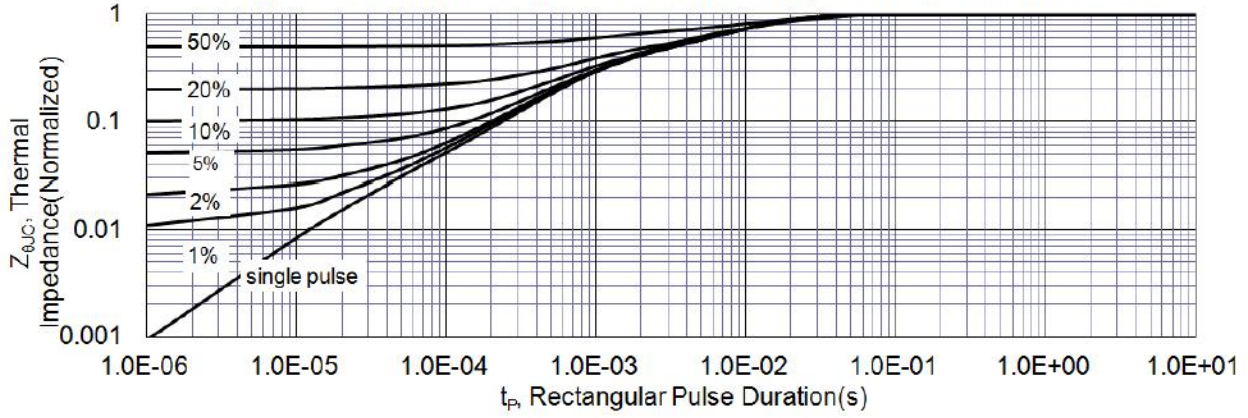


Figure 2A. Maximum Power Dissipation vs. Case Temperature

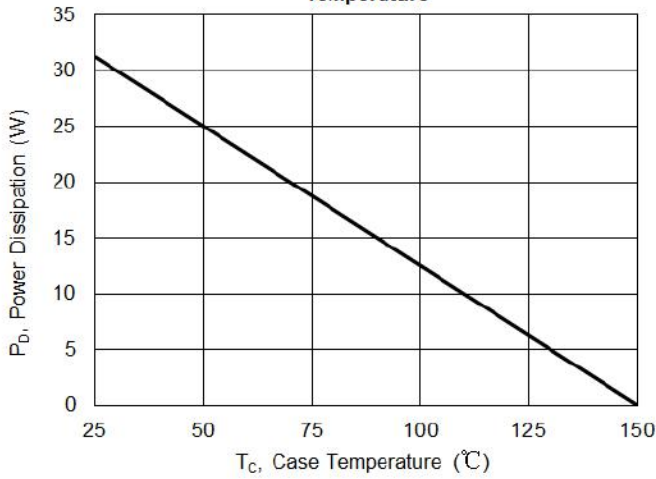


Figure 2B. Maximum Power Dissipation vs. Ambient Temperature

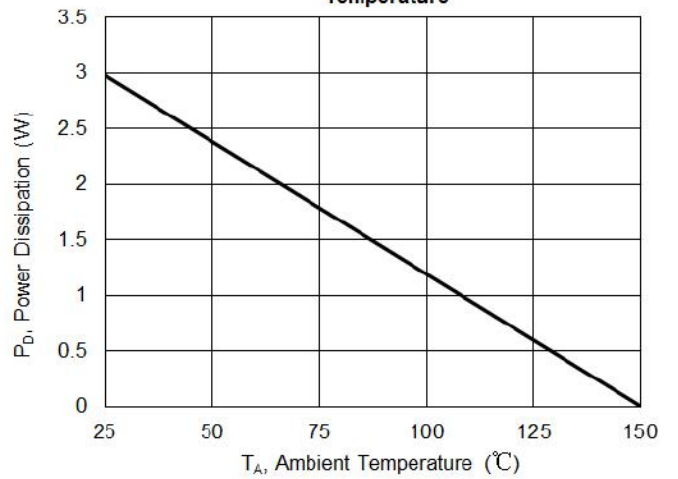


Figure 3A. Maximum Continuous Drain Current vs Case Temperature

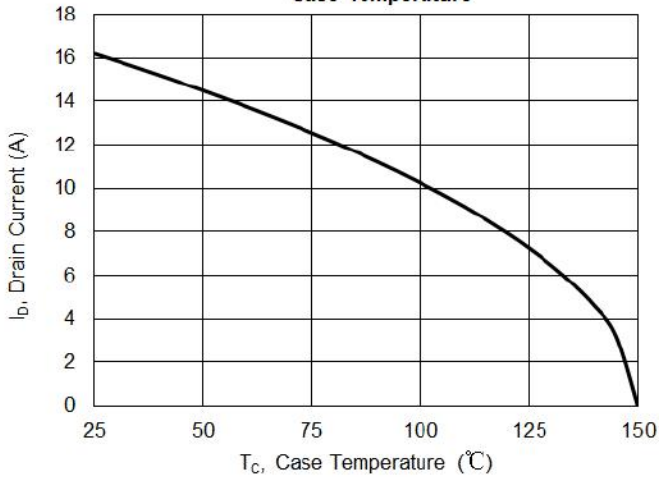


Figure 3B. Maximum Continuous Drain Current vs Ambient Temperature

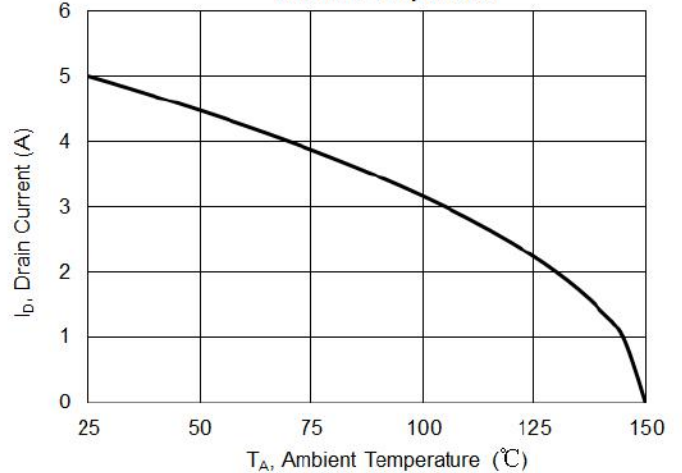


Figure 4. Typical Output Characteristics

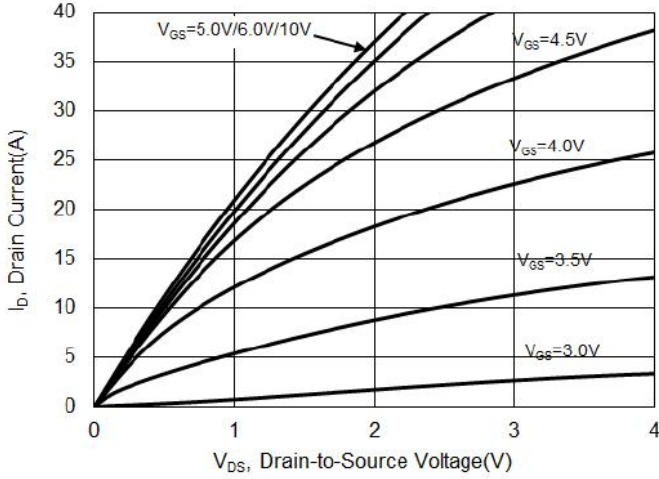


Figure 5. Typical Drain-to-Source ON Resistance vs. Gate Voltage

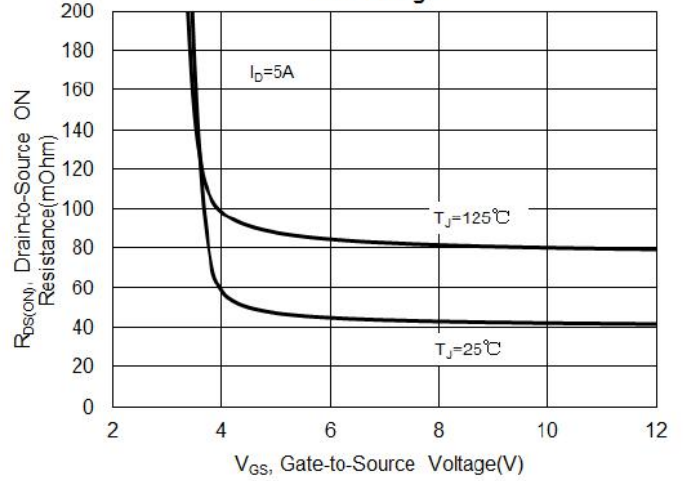


Figure 6. Maximum Peak Current Capability

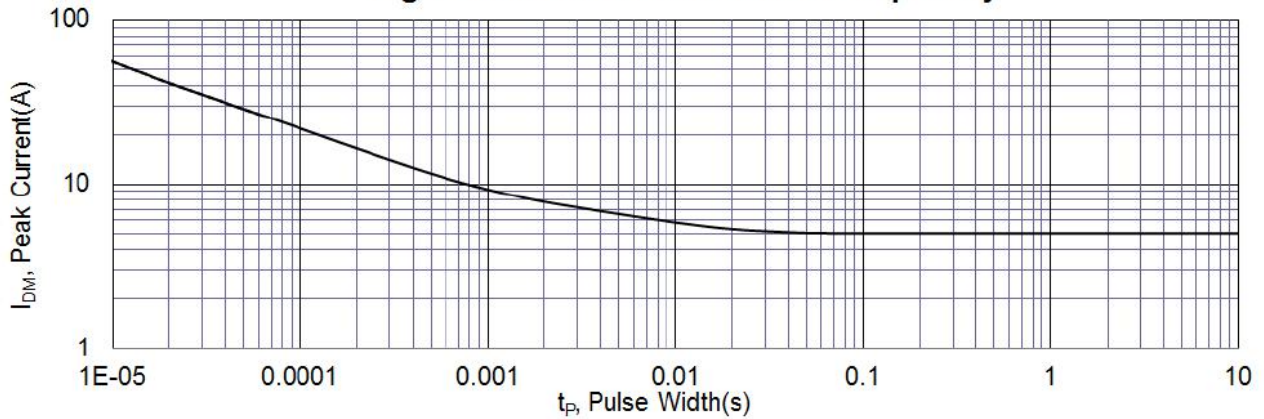


Figure 7. Typical Transfer Characteristics

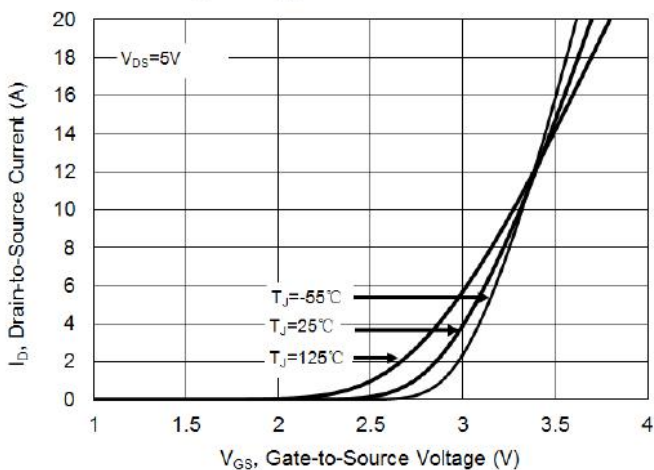


Figure 8. Unclamped Inductive Switching Capability

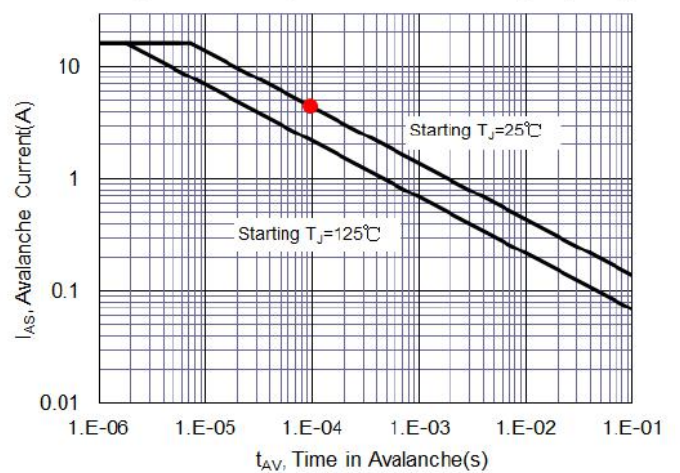


Figure 9. Typical Drain-to-Source ON Resistance

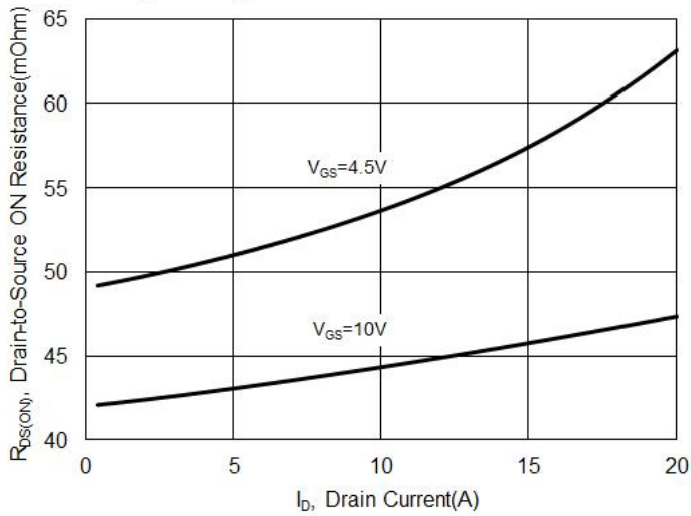


Figure 10. Typical Drain-to-Source ON Resistance vs. Junction Temperature

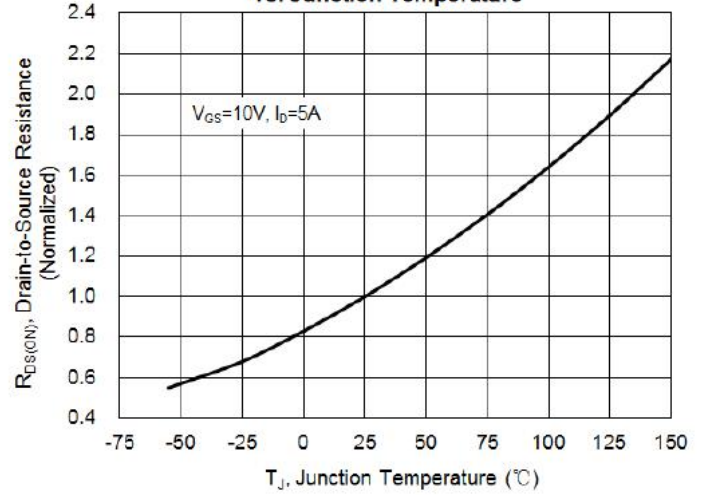


Figure 11. Typical Breakdown Voltage vs. Junction Temperature

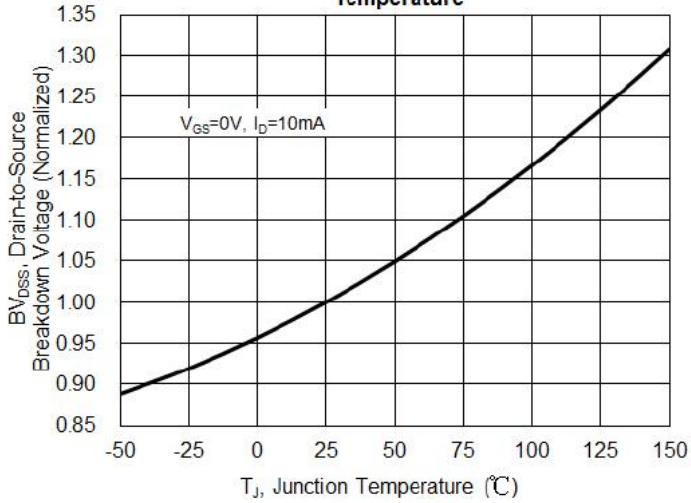


Figure 12. Typical Threshold Voltage vs. Junction Temperature

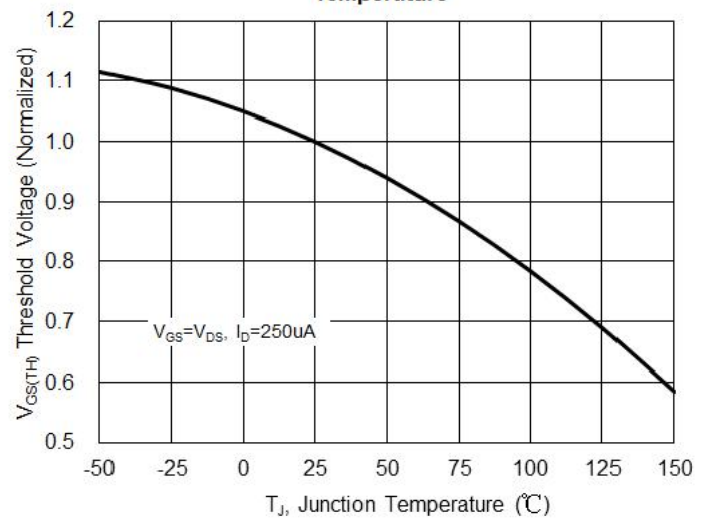


Figure 13. Maximum Forward Safe Operation Area

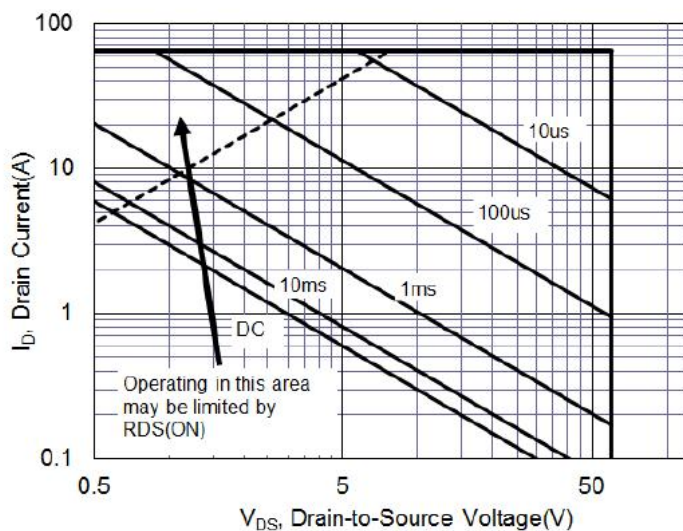


Figure 14. Typical Capacitance vs. Drain-to-Source Voltage

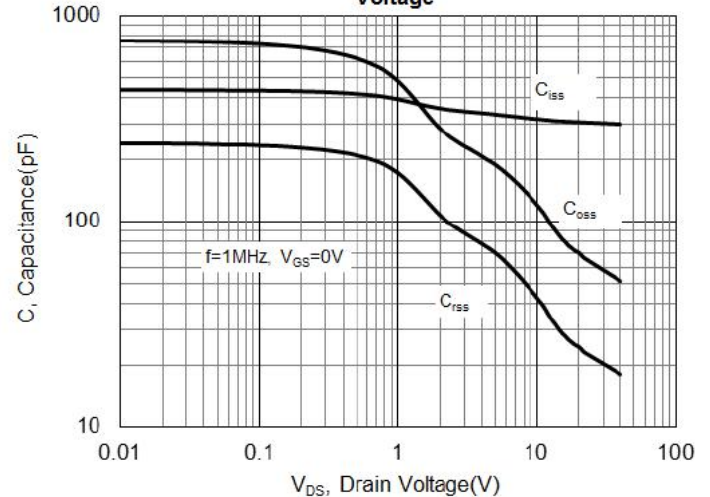


Figure 15. Typical Gate Charge vs. Gate-to-Source Voltage

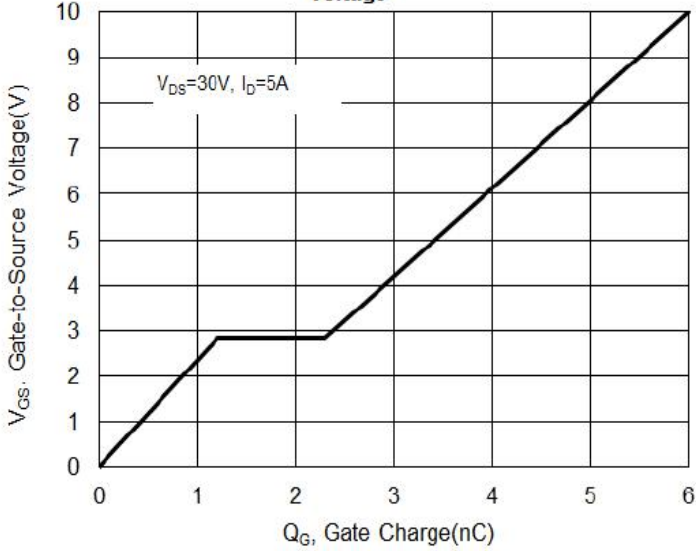
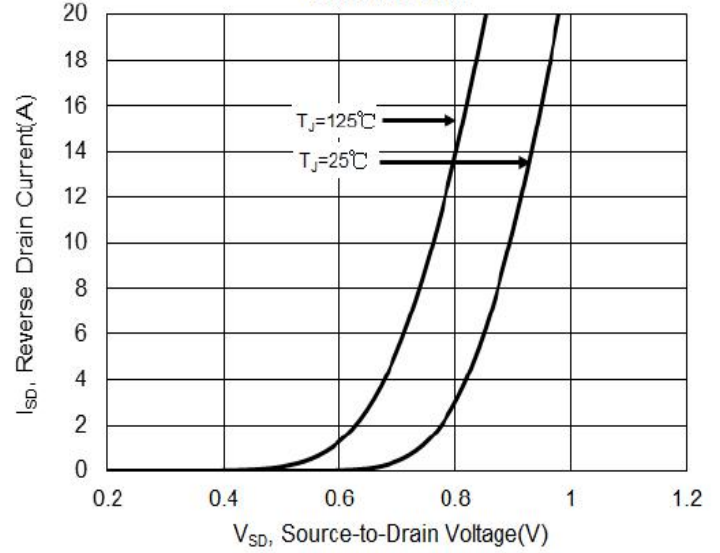


Figure 16. Typical Body Diode Transfer Characteristics



Order information:

Order information							
	Y	2	N/	6	55	S	()
公司商标代号 Company symbol		1: NIL ,2:2 MOS		P: PMOS, N:N MOS		BVDSS: 6—60V;10—100V;20—200V; 35—350V; 40—400V	
RDS(on) : 55—55m Ω ;38—38m Ω ; 16—16m Ω		D:DIP;S:SOP		Special code			

Dimension and PCB layout :

