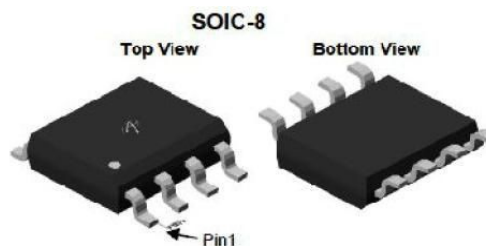


## Y2N 655S—60V 10A N-Channel MOSFET Power MOSFET (2 IN 1)

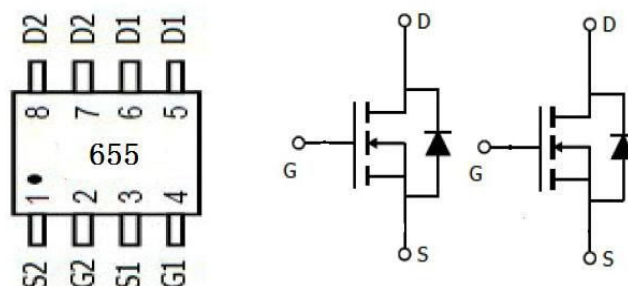
### Features

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



### Applications

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



### Marking Information

Part Number	Package	Marking
Y2N 655S	SOP8	655

### Absolute Maximum Ratings

( $T_a=25^\circ\text{C}$ )

Absolute Maximum Ratings		TA=25°C unless otherwise noted	
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	$V_{GS}$	$\pm 20$	V
Gate-Source Voltage	$V_{DS}$	60	V
Continuous Drain Current	$I_D$	$T_A=25^\circ\text{C}$	16.2
		$T_A=70^\circ\text{C}$	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	$P_D$	$T_A=25^\circ\text{C}$	31.3
		$T_A=70^\circ\text{C}$	3.0
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 155	°C

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

### 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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$I_D=250\mu A, V_{GS}=0V$	60			V
$I_{DSS}$	Drain-Source leakage current	$V_{DS}=60V, V_{GS}=0V$			5	$\mu A$
		$V_{DS}=48V, V_{GS}=0V, T_J = 125^\circ C$			100	
$I_{GSS}$	Gate-Body leakage current	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 10$	$\mu A$
<b>ON Characteristics</b>						
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=5A$ [3]		51	66	$m\Omega$
		$V_{GS}=10V, I_D=5A$ [3]		43	55	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.8	3.0	V
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{GS}=0V, V_{DS}=30V, f=1.0MHz$		300		pf
$C_{rss}$	Reverse Transfer Capacitance			18		
$C_{oss}$	Output Capacitance			52		
$R_G$	Gate Series Resistance	$f=1.0MHz$		3.1		$\Omega$
$Q_g$	Total Gate Charge	$V_{DD}=30V, I_D=5A, V_{GS}=10V$		6.0		nC
$Q_{gs}$	Gate-to-Source Charge			1.2		
$Q_{gd}$	Gate-to-Drain(Miller) Charge			1.1		
<b>Resistive Switching Characteristics</b>						
$T_{d(on)}$	Turn-On Delay time	$V_{DD}=30V, I_D=5A, V_{GS}=10V, R_G=6\Omega$		2.0		ns
$t_{rise}$	Rise Time			5.6		
$T_{d(off)}$	Turn-Off Delay Time			23		
$t_{fall}$	Fall Time			14		
<b>Source-Drain Body Diode Characteristics</b>						
$I_{SD}$	Continuous Source Current	Maximum Ratings			2.5	A
$I_{SM}$	Pulsed Source Current				10	
$V_{SD}$	Diode Forward Voltage	$I_S=5A, V_{GS}=0V$		0.85	1.2	V
$t_{rr}$	Reverse Recovery Time	$V_{GS}=0V, I_F=5A, di/dt=100A/us$		29		ns
$Q_{rr}$	Reverse Recovery Charge			24		nC

### Notes:

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

[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

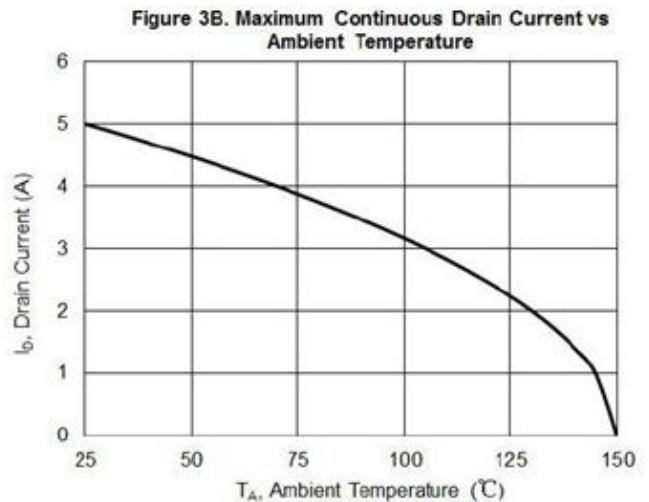
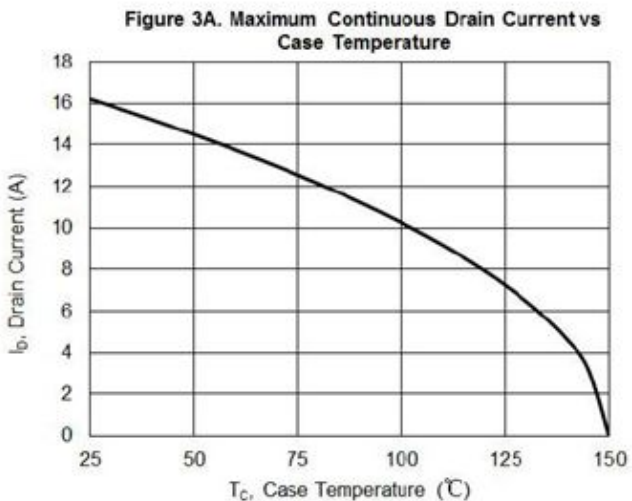
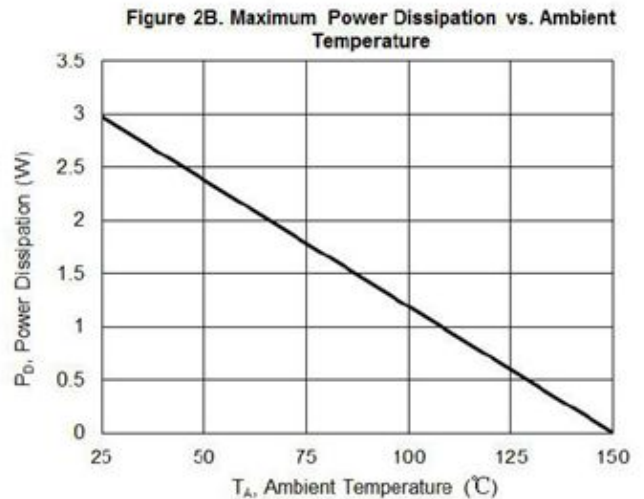
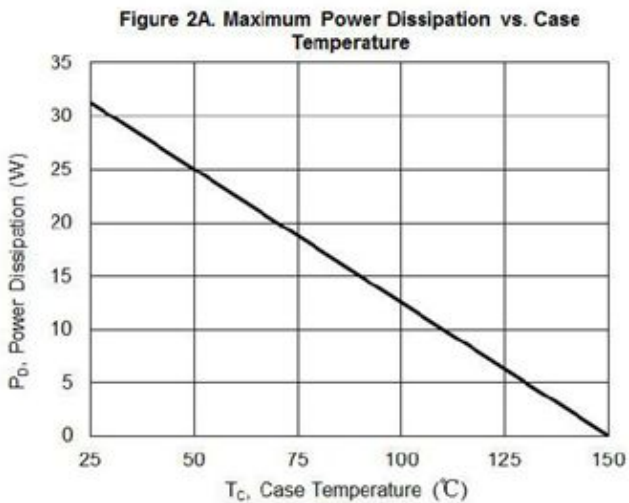
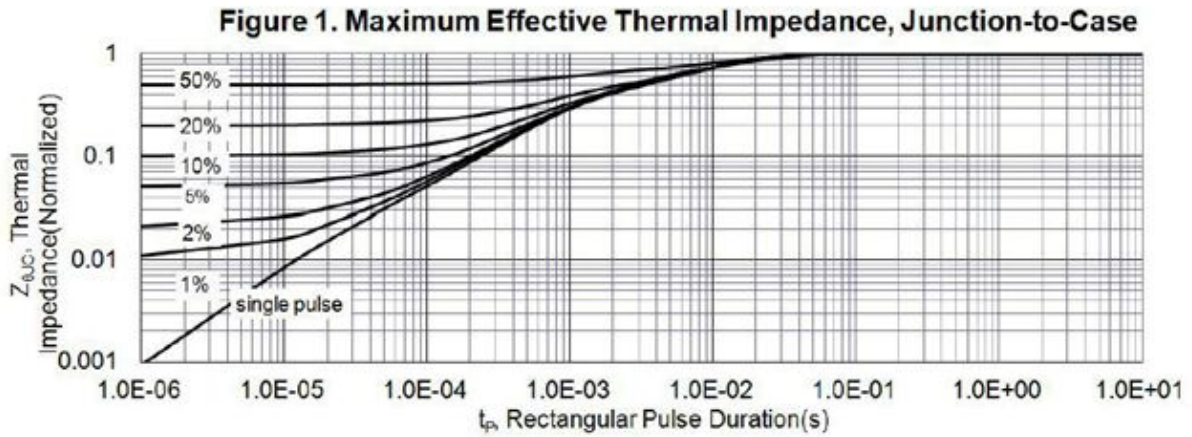


Figure 4. Typical Output Characteristics

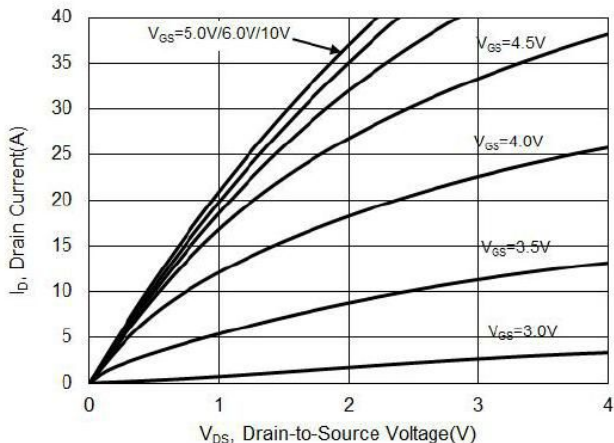


Figure 5. Typical Drain-to-Source ON Resistance vs. Gate Voltage

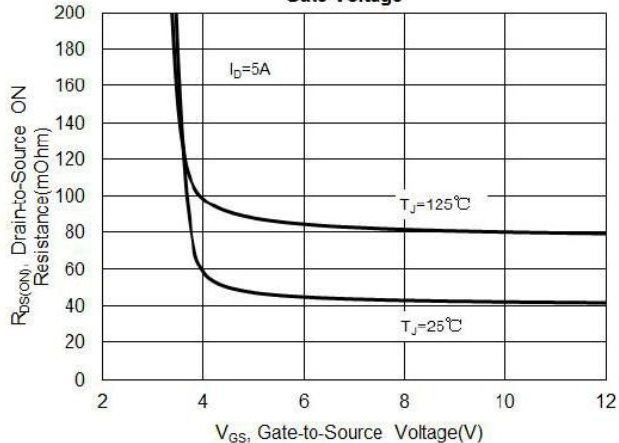


Figure 6. Maximum Peak Current Capability

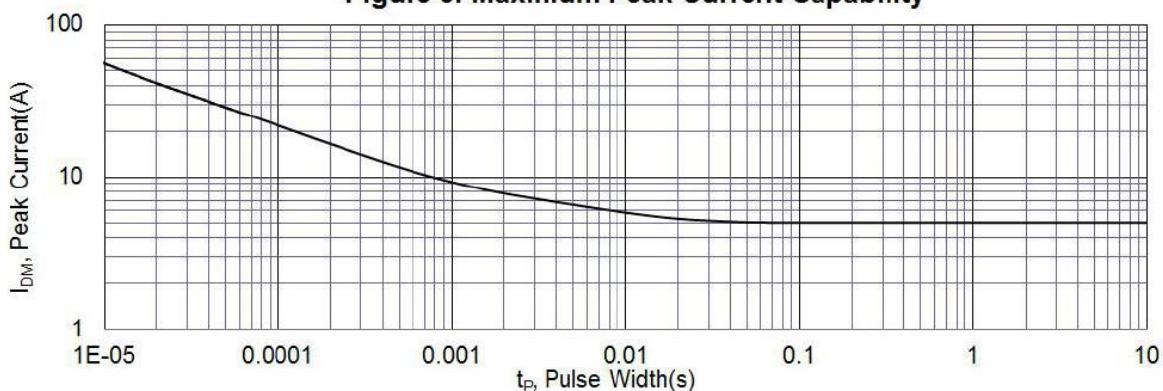


Figure 7. Typical Transfer Characteristics

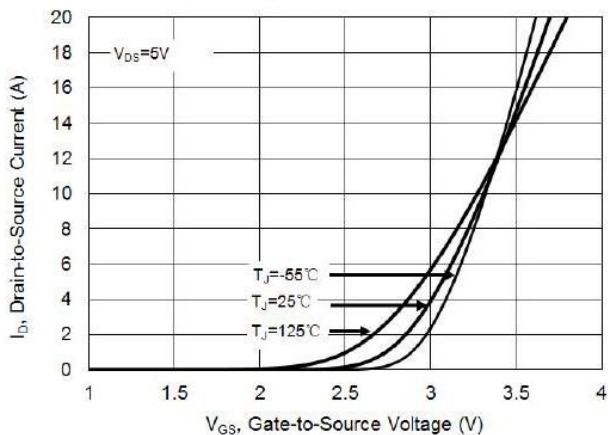


Figure 8. Unclamped Inductive Switching Capability

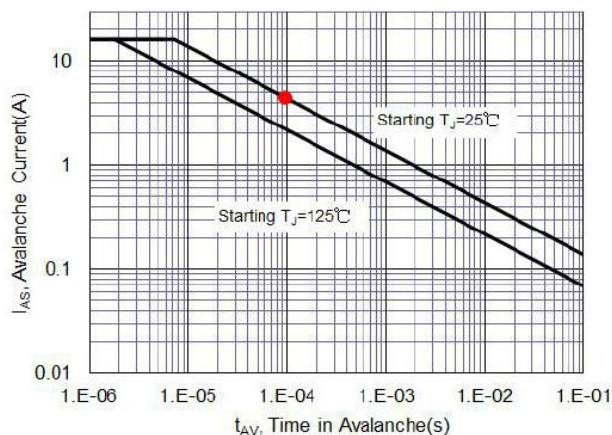


Figure 9. Typical Drain-to-Source ON Resistance

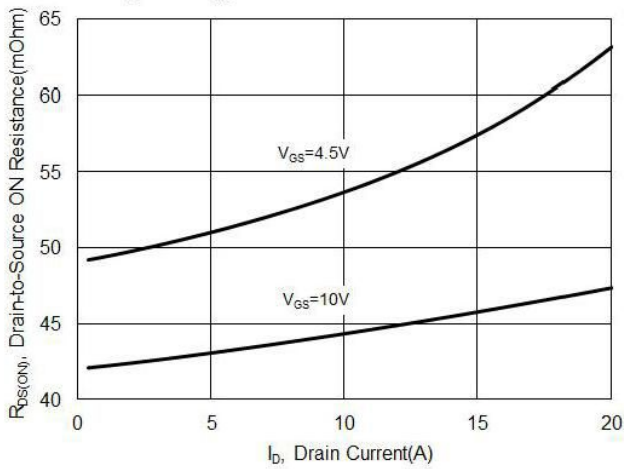


Figure 10. Typical Drain-to-Source On Resistance vs. Junction Temperature

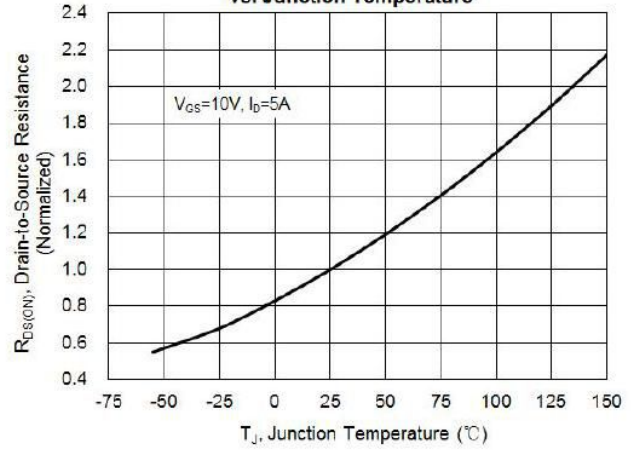


Figure 11. Typical Breakdown Voltage vs. Junction Temperature

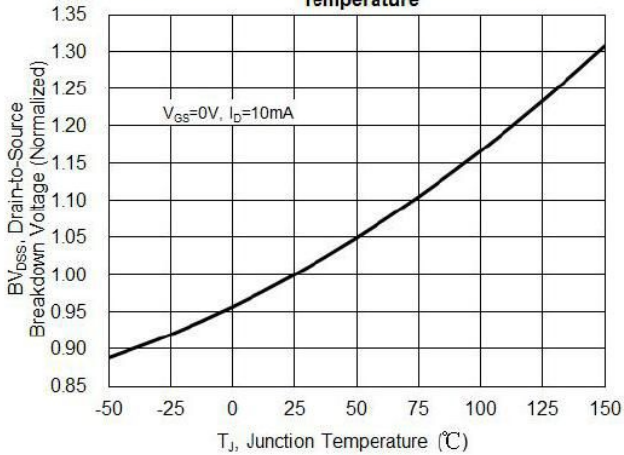


Figure 12. Typical Threshold Voltage vs. Junction Temperature

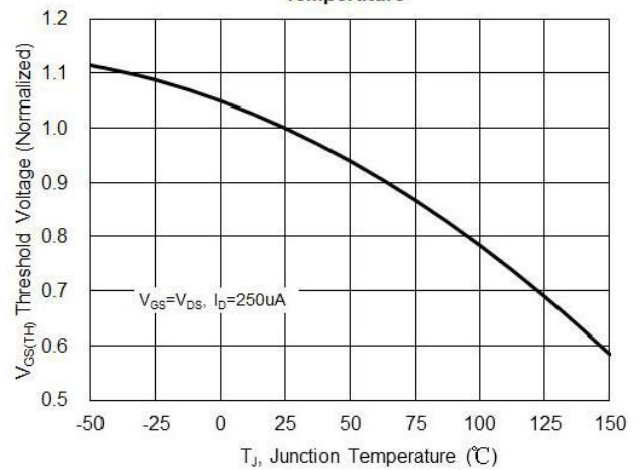


Figure 13. Maximum Forward Safe Operation Area

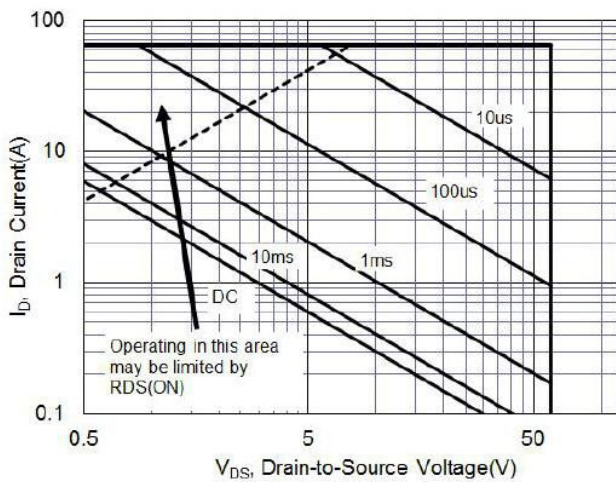


Figure 14. Typical Capacitance vs. Drain-to-Source Voltage

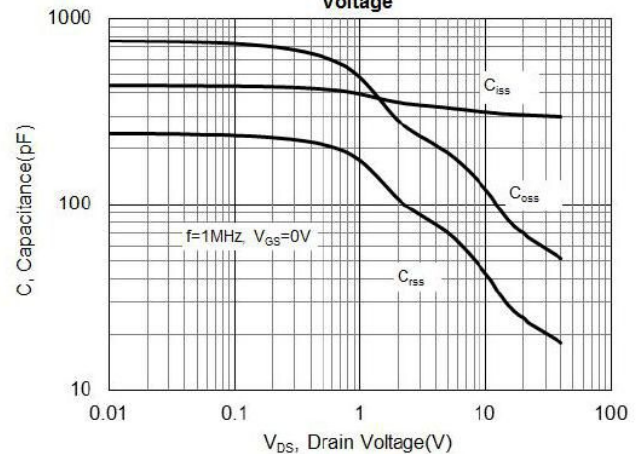


Figure 15. Typical Gate Charge vs. Gate-to-Source Voltage

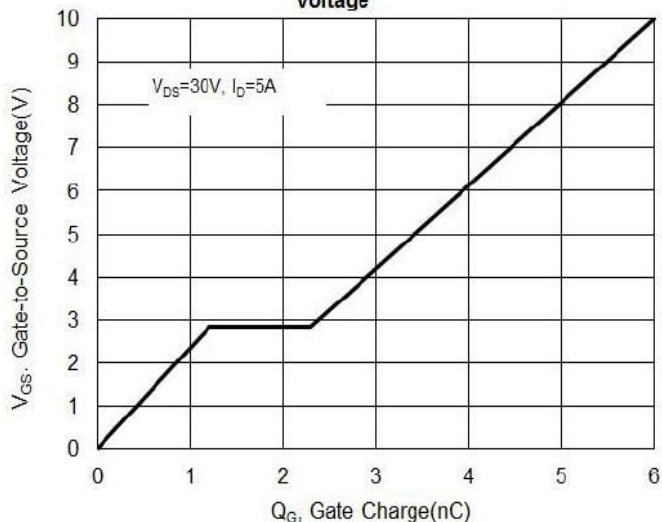
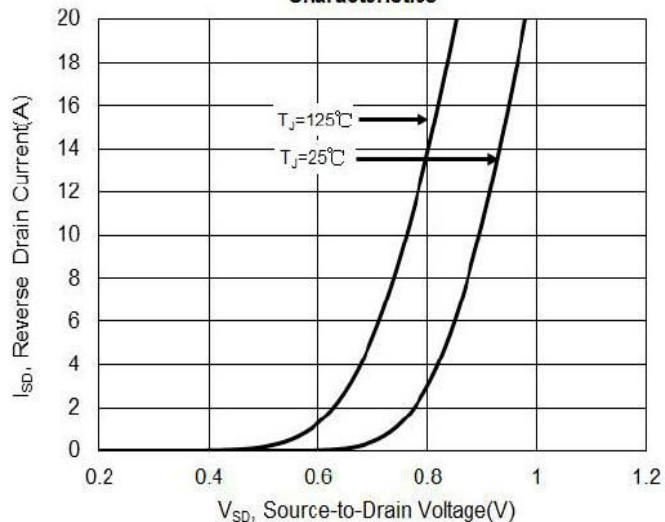


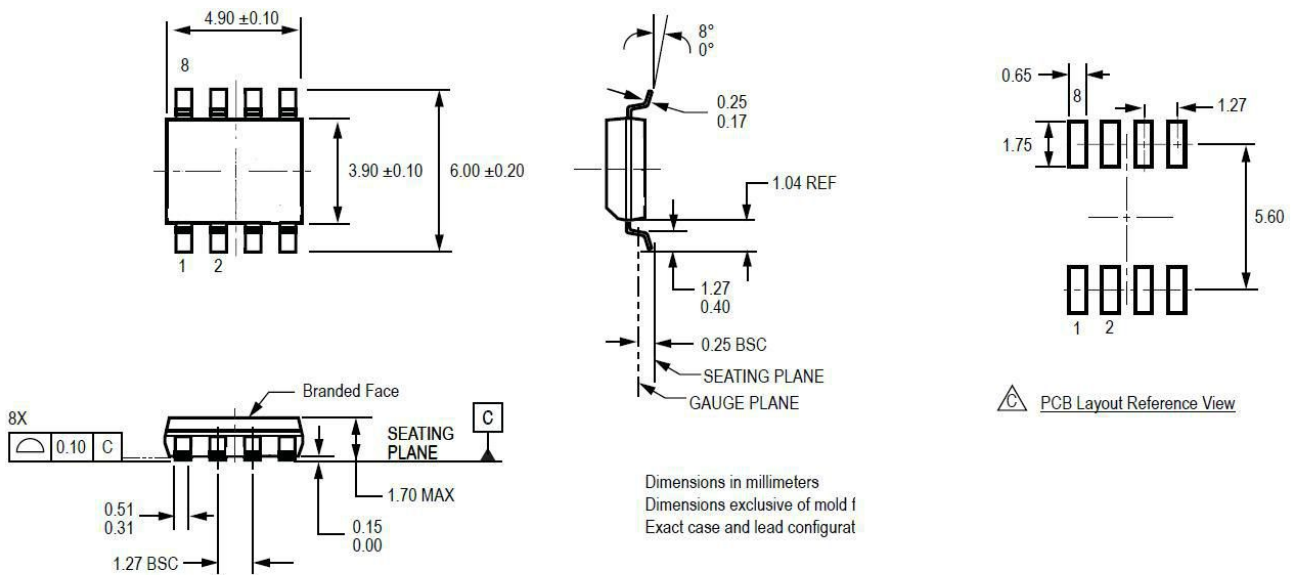
Figure 16. Typical Body Diode Transfer Characteristics



### Ordering Information :

订货信息/Ordering Information							
	Y	2	N/	6	55	S	()
公司商标代号 Company symbol							
1:NIL 2:2MOS							
P:P MOS N:N MOS							
负载电压 Load voltage : 6-60V;10-100V; 20-200V ;35-350V;40-400V							
R <sub>DS(on)</sub> : 55—55mΩ							
S:SOP							
用户特殊编号 Special code							

**Dimension and PCB layout :**



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