优尚

YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

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企业微信二维码

企业QQ二维码

Features

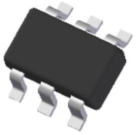
- Low On-Resistance
- Low Gate Threshold Voltage $V_{GS(th)} < 1V$
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Complementary Pair MOSFET
- Ultra-Small Surface Mount Package

Mechanical Data

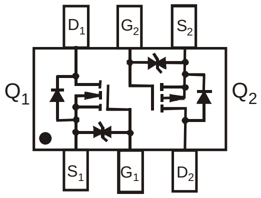
- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Page 7
- Ordering & Date Code Information: See Page 7
- Weight: 0.006 grams (approximate)

ESD protected

SOT-363



TOP VIEW



TOP VIEW

Internal Schematic

Maximum Ratings N-CHANNEL – Q_1

@T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Drain Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current (Note 1)	T_A = 25°C T_A = 85°C	I_D	540 390	mA

Maximum Ratings P-CHANNEL – Q_2

@T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Drain Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current (Note 1)	T_A = 25°C T_A = 85°C	I_D	-430 -310	mA

Thermal Characteristics – Total Device

@T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_d	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150	°C

Electrical Characteristics N-CHANNEL – Q_1 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	V_{GS} = 0V, I_D = 10μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	V_{DS} = 16V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	± 1	μA	V_{GS} = ±4.5V, V_{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	—	1.0	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	— — —	0.4 0.5 0.7	0.55 0.70 0.90	Ω	V_{GS} = 4.5V, I_D = 540mA V_{GS} = 2.5V, I_D = 500mA V_{GS} = 1.8V, I_D = 350mA
Forward Transfer Admittance	$\|Y_{fs}\|$	200	—	—	mS	V_{DS} =10V, I_D = 0.2A
Diode Forward Voltage (Note 5)	V_{SD}	0.5	—	1.2	V	V_{GS} = 0V, I_S = 115mA
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	—	150	pF	V_{DS} = 16V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	20	pF	

Electrical Characteristics P-CHANNEL – Q_2 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	-20	—	—	V	V_{GS} = 0V, I_D = -250μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1.0	μA	V_{DS} = -20V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	± 1.0	μA	V_{GS} = ±4.5V, V_{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	0.7 1.1 1.7	0.9 1.4 2.0	Ω	V_{GS} = -4.5V, I_D = -430mA V_{GS} = -2.5V, I_D = -300mA V_{GS} = -1.8V, I_D = -150mA
Forward Transfer Admittance	$\|Y_{fs}\|$	200	—	—	mS	V_{DS} =10V, I_D = 0.2A
Diode Forward Voltage (Note 5)	V_{SD}	-0.5	—	-1.2	V	V_{GS} = 0V, I_S = -115mA
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	—	175	pF	V_{DS} = -16V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	—	30	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	20	pF	

Notes: 5. Short duration pulse test used to minimize self-heating effect.

Q_1, N-CHANNEL

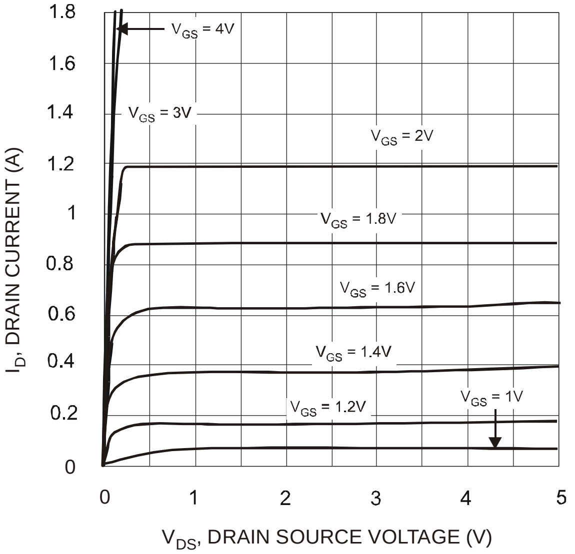


Fig. 1 Typical Output Characteristics

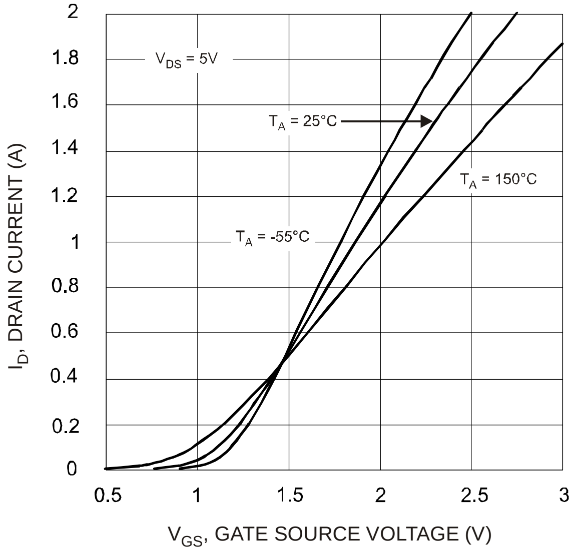


Fig. 2 Typical Transfer Characteristics

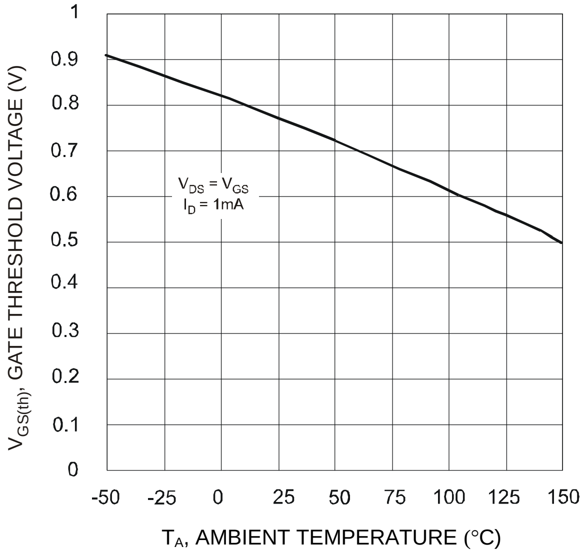


Fig. 3 Gate Threshold Voltage vs.
Ambient Temperature

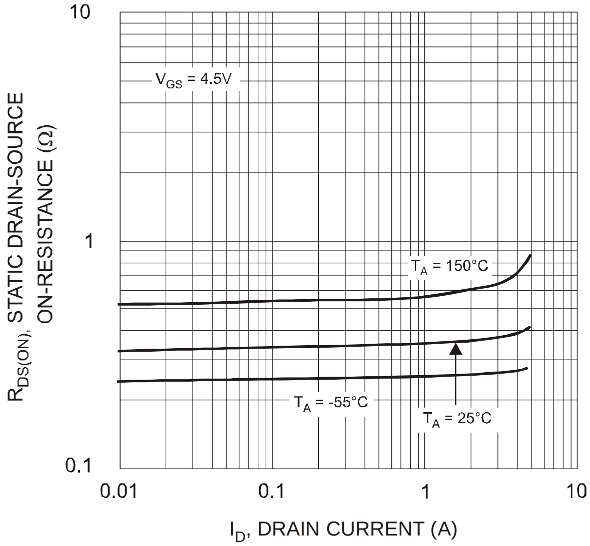


Fig. 4 Static Drain-Source On-Resistance vs.
Drain Current

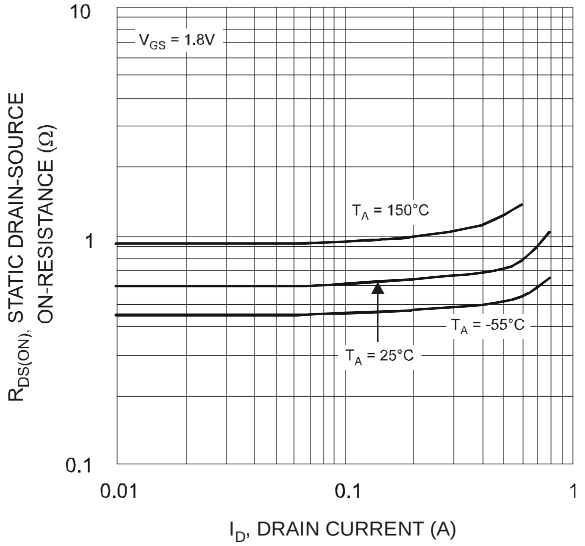


Fig. 5 Static Drain-Source On-Resistance vs.
Drain Current

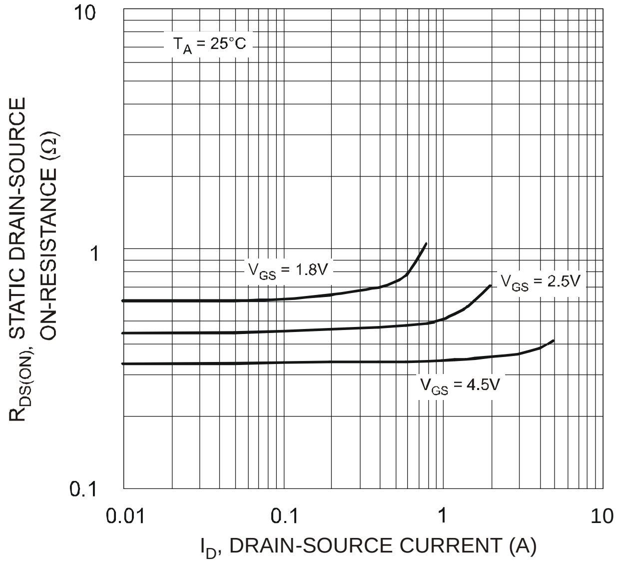


Fig. 6 Static Drain-Source On-Resistance vs.
Drain-Source Current vs. Gate Source Voltage

Q$_1$, N-CHANNEL (continued)

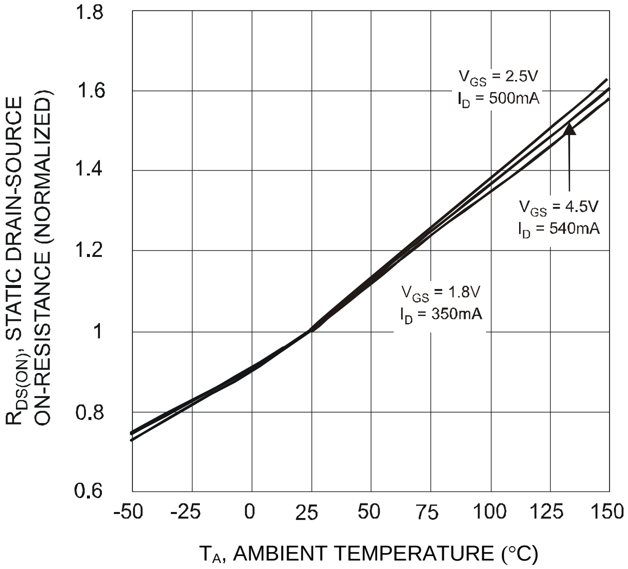


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

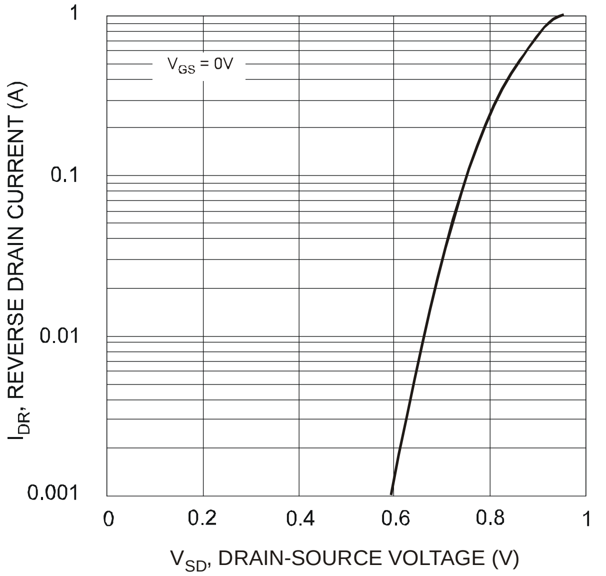


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

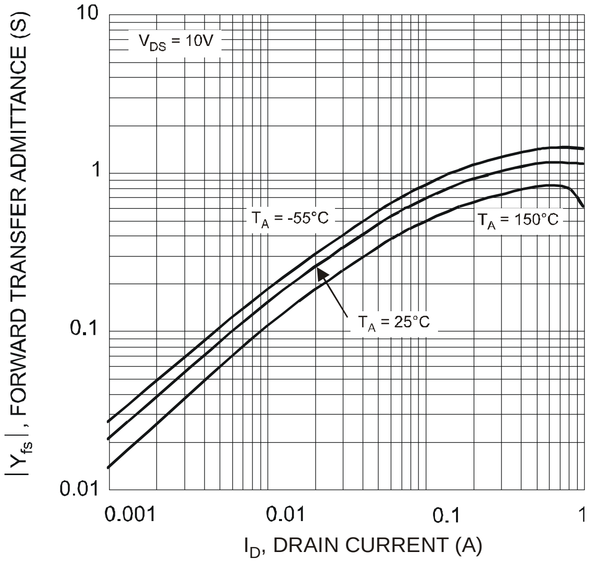


Fig. 9 Forward Transfer Admittance vs. Drain Current

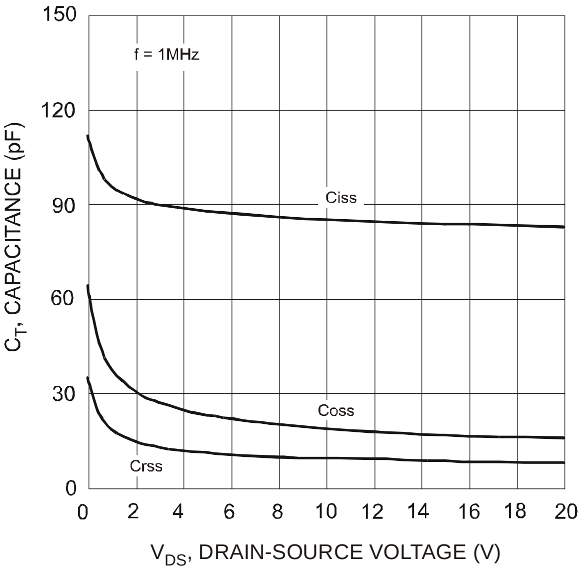


Fig. 10 Typical Capacitance

Q_2, P-CHANNEL

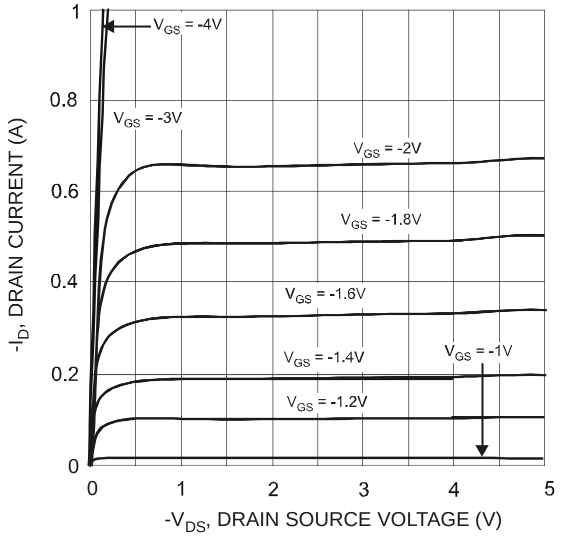


Fig. 11 Typical Output Characteristics

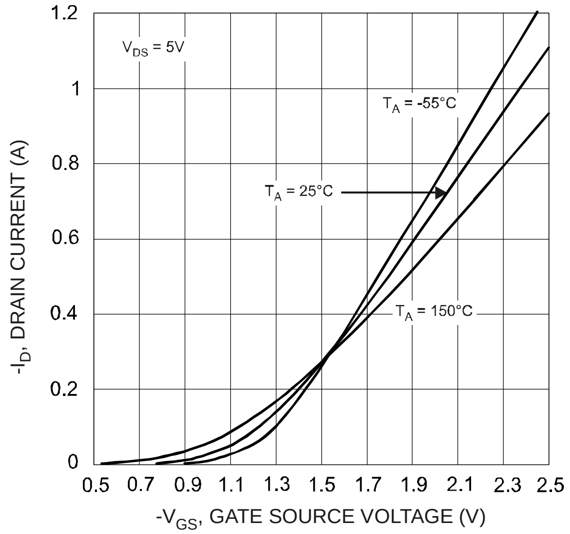


Fig. 12 Typical Transfer Characteristics

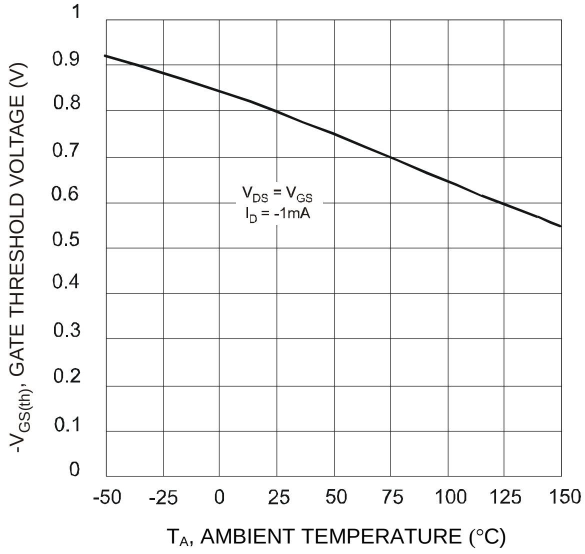


Fig. 13 Gate Threshold Voltage vs. Ambient Temperature

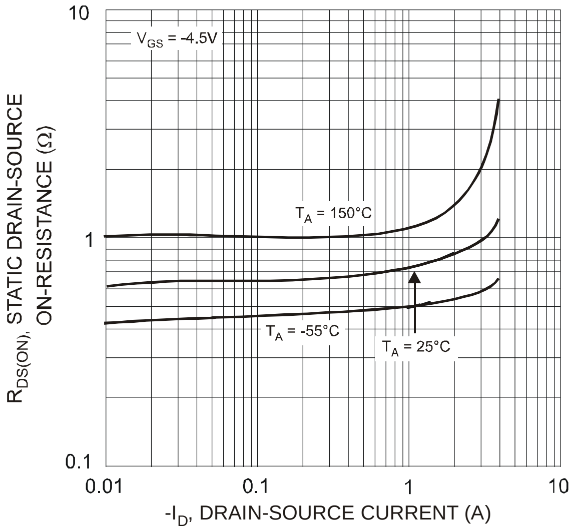


Fig. 14 Static Drain-Source On-Resistance vs. Drain Current

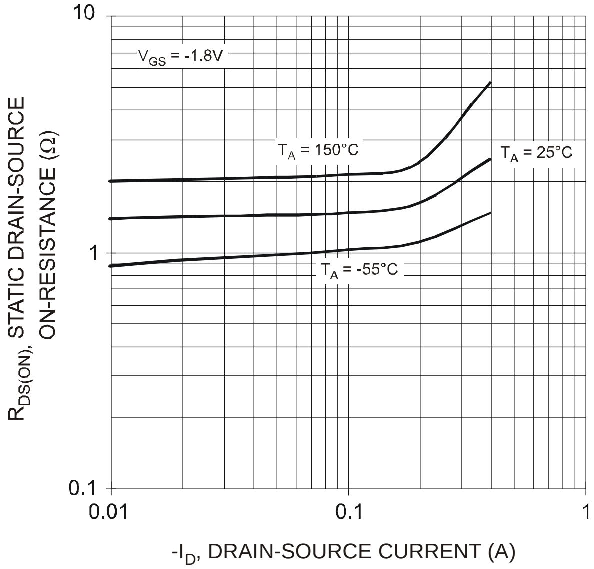


Fig. 15 Static Drain-Source On-Resistance vs. Drain Current

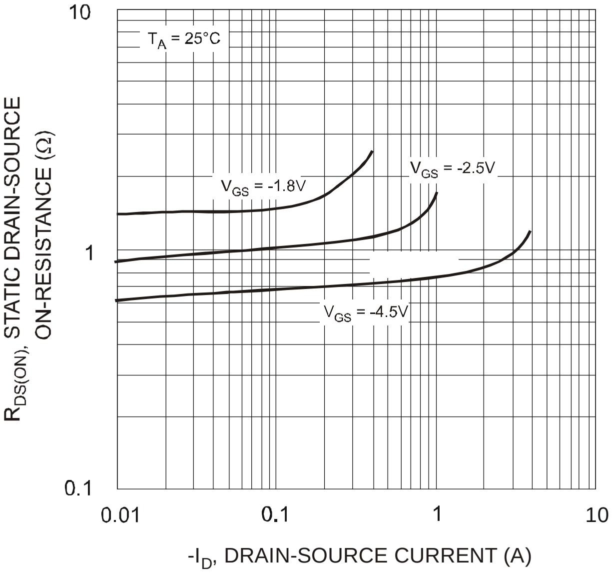


Fig. 16 Static Drain-Source On-Resistance vs. Drain-Source Current vs. Gate Source Voltage

Q_2, P-CHANNEL (continued)

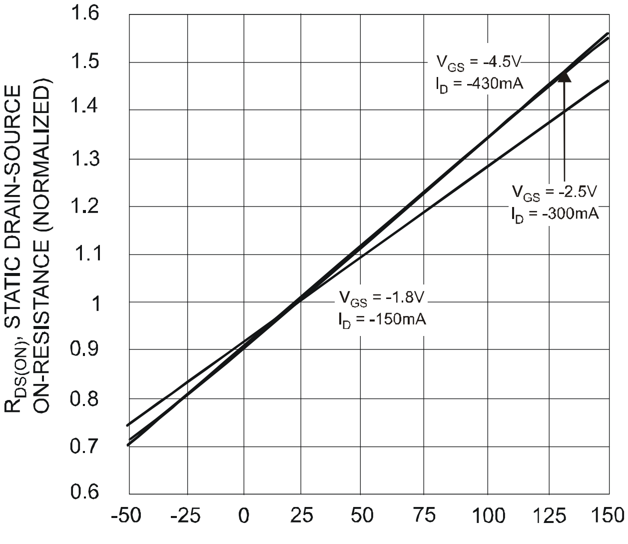


Fig. 17 Static Drain-Source On-State Resistance vs. Ambient Temperature

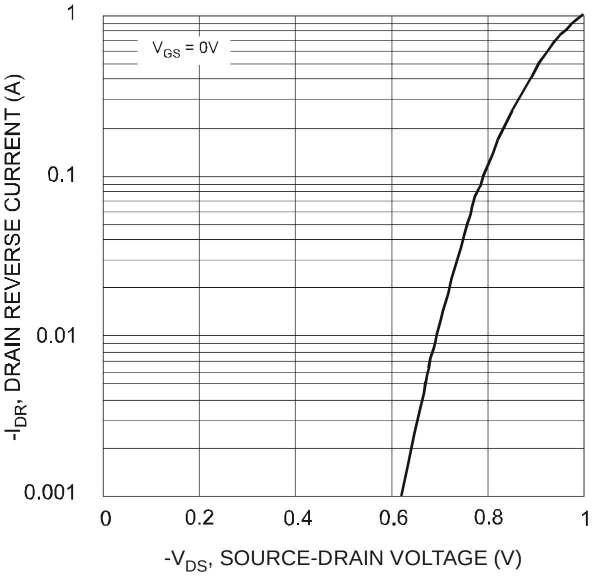


Fig. 18 Reverse Drain Current vs. Source-Drain Voltage

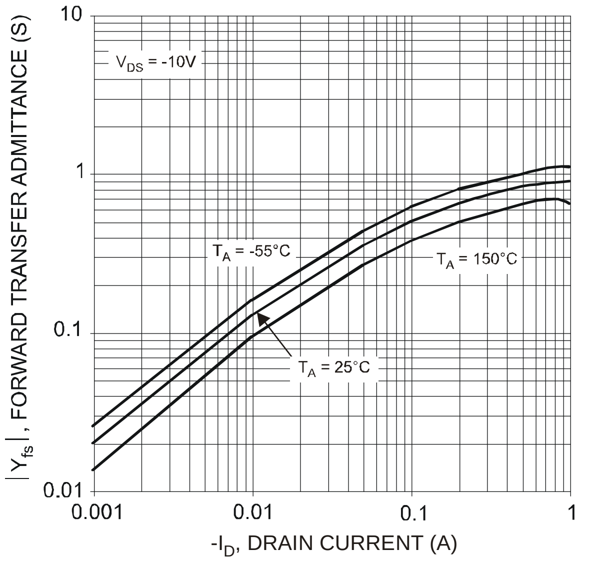


Fig. 19 Forward Transfer Admittance vs. Drain Current

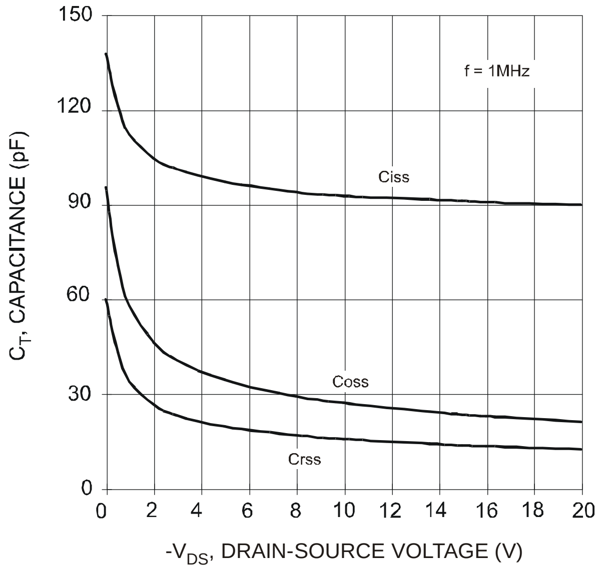
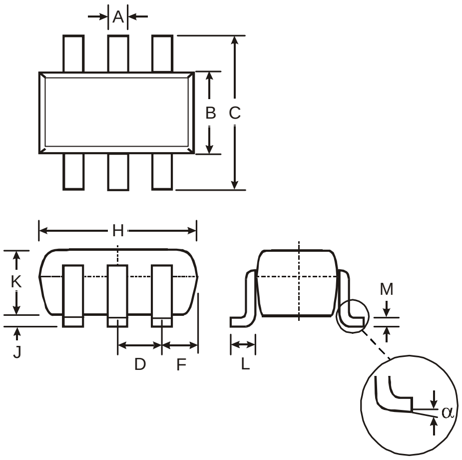


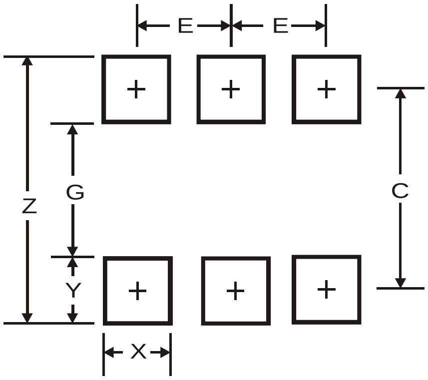
Fig. 20 Typical Capacitance

Package Outline Dimensions



SOT-363		
Dim	**Min**	**Max**
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C	1.9
E	0.65