



**Absolute Maximum Ratings** at  $T_j=25$  unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	550	V
Gate-source voltage	$V_{GS}$	$\pm 30$	V

Continuous drain current<sup>1)</sup>,  $T_C=25$  °C

### Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	$C_{iss}$		1408.8		pF	$V_{GS}=0\text{ V}$ , $V_{DS}=50\text{ V}$ , MHz
Output capacitance	$C_{oss}$		151.2		pF	
Reverse transfer capacitance	$C_{rss}$		4.14		pF	
Turn-on delay time	$t_{d(on)}$		40.5		ns	$V_{GS}=10\text{ V}$ , $V_{DS}=420\text{ V}$ , $R_G=25$ $I_D=23\text{ A}$
Rise time	$t_r$		73.5		ns	
Turn-off delay time	$t_{d(off)}$		63.6		ns	
Fall time	$t_f$		73.5		ns	

### Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	$Q_g$		24.1		nC	$V_{GS}=10\text{ V}$ , $V_{DS}=420\text{ V}$ , $I_D=23\text{ A}$
Gate-source charge	$Q_{gs}$		9		nC	
Gate-drain charge	$Q_{gd}$		7.4		nC	
Gate plateau voltage	$V_{plateau}$		5.6		V	

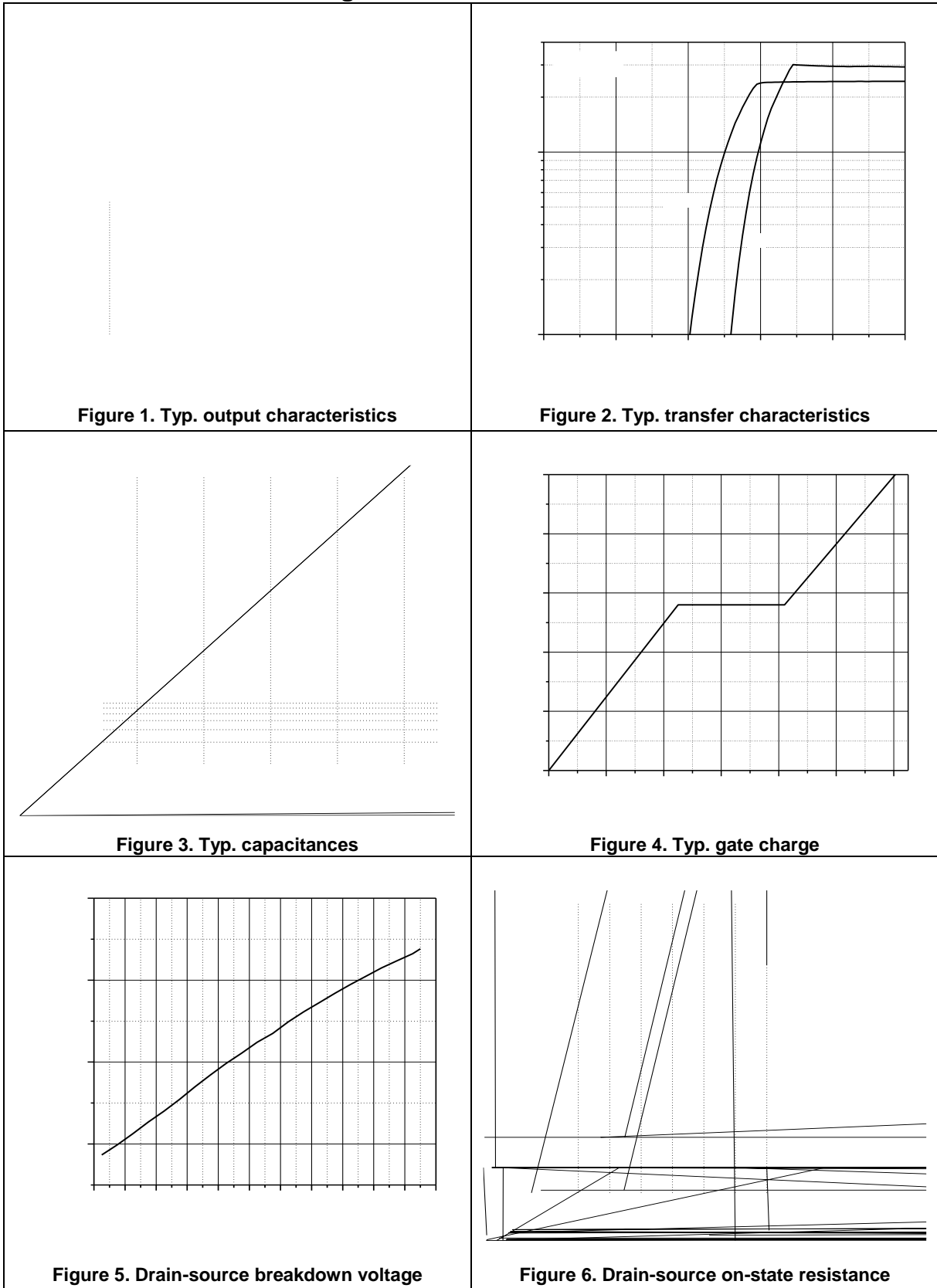
### Body Diode Characteristics

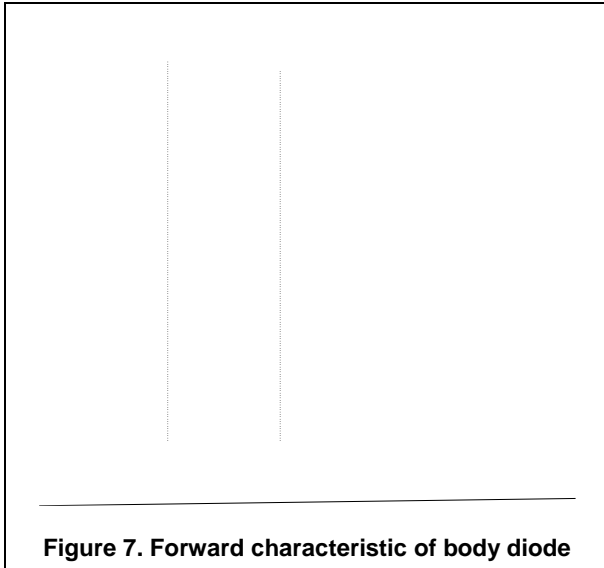
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	$V_{SD}$			1.4	V	$I_S=23\text{ A}$ , $V_{GS}=0\text{ V}$
Reverse recovery time	$t_{rr}$		372		ns	$V_R=400\text{ V}$ , $I_S=23\text{ A}$
Reverse recovery charge	$Q_{rr}$		5.1		C	
Peak reverse recovery current	$I_{rrm}$		25.6		A	

### Note

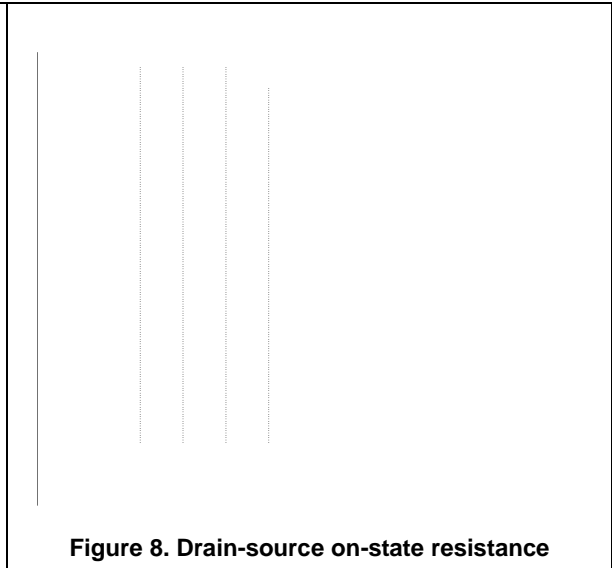
- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating; pulse width limited by max. junction temperature.
- 3)  $P_d$  is based on max. junction temperature, using junction-case thermal resistance.
- 4) The value of  $R_{\theta}$  is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with  $T_a=25\text{ }^\circ\text{C}$ .
- 5)  $V_{DD}=100\text{ V}$ ,  $V_{GS}=10\text{ V}$ ,  $L=80\text{ mH}$ , starting  $T_j=25\text{ }^\circ\text{C}$ .

**Electrical Characteristics Diagrams**

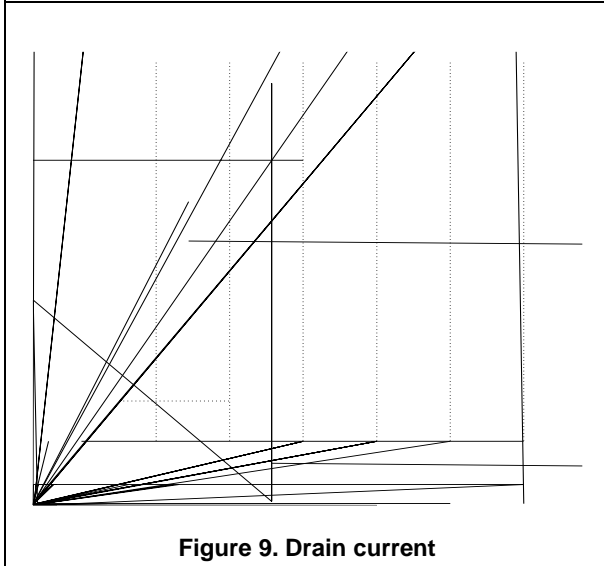




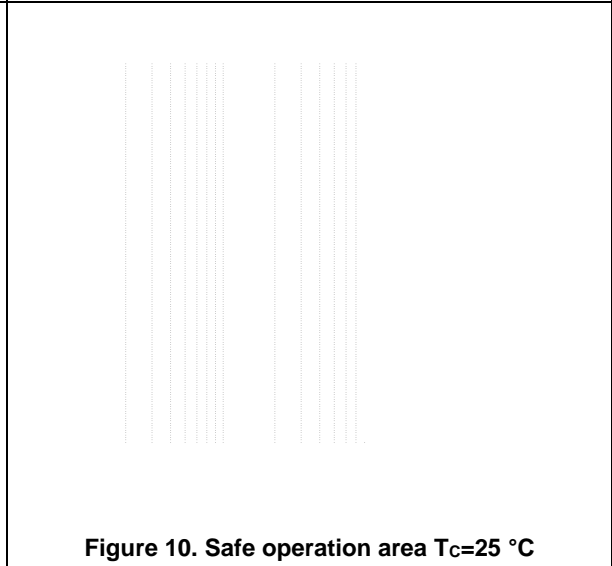
**Figure 7. Forward characteristic of body diode**




**Figure 8. Drain-source on-state resistance**



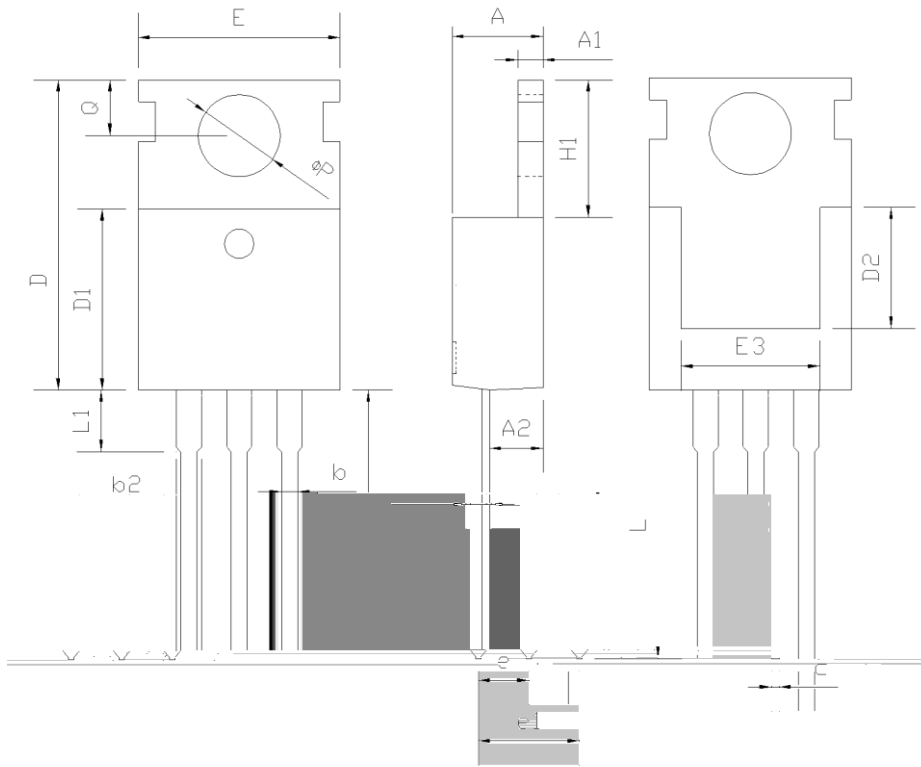
**Figure 9. Drain current**



**Figure 10. Safe operation area T<sub>C</sub>=25 °C**

**OSG55R140PF**  
Enhancement Mode N-Channel Power MOSFET 

**Package Information**



Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.25	1.30	1.45
A2	2.20	2.40	2.60
b	0.70	0.80	0.95
b2	1.17	1.27	1.47
c	0.40	0.50	0.65
D	15.10	15.60	16.10
D1	8.80	9.10	9.40
D2	5.50	-	-
E	9.70	10.00	10.30
E3	7.00	-	-
e	2.54 BSC		
e1	5.08 BSC		
H1	6.25	6.50	6.85
L	12.75	13.50	13.80
L1	-	3.10	3.40
	3.40	3.60	3.80
Q	2.60	2.80	3.00

Version 1: TO220-C outline dimension

**Ordering Information**

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220-C	50	20	1000	6	6000

**Product Information**

Product	Package	Pb Free	RoHS	Halogen Free
OSG55R140PF	TO220	yes	yes	yes