

The GreenMOS[®] high voltage MOSFET utilizes charge balance technology to achieve outstanding low on-resistance and lower gate charge. It is engineered to minimize conduction loss, provide superior switching performance and robust avalanche capability.

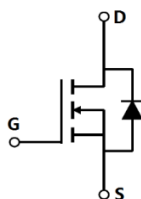
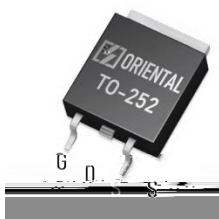


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Parameter	Value	Unit
$V_{DS, min} @ T_{j(max)}$	700	V
$I_{D, pulse}$	24	A
$R_{DS(ON), max} @ V_{GS}=10V$	580	
Q_g	12.4	nC

Product Name	Package	Marking
OSG65R580DEF	TO252	OSG65R580DE



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	650	V
Gate-source voltage	V_{GS}	± 30	V
Continuous drain current ¹⁾ , $T_C=25$ °C	I_D	8	A
Continuous drain current ¹⁾ , $T_C=100$ °C		5	
Pulsed drain current ²⁾ , $T_C=25$ °C	$I_{D, pulse}$	24	A
Continuous diode forward current ¹⁾ , $T_C=25$ °C	I_S	8	A
Diode pulsed current ²⁾ , $T_C=25$ °C	$I_{S, pulse}$	24	A
Power dissipation ³⁾ , $T_C=25$ °C	P_D	63	W
Single pulsed avalanche energy ⁵⁾	E_{AS}	150	mJ
MOSFET dv/dt ruggedness, V_{DS}	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS}	dv/dt	15	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R	2	°C/W
Thermal resistance, junction-ambient ⁴⁾	R	62	°C/W

Electrical Characteristics at $T_j=25$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	650	750		V	$V_{GS}=0$ V, $I_D=250$ A $V_{GS}=0$ V, I_D , $T_j=150$ °C

Enhancement Mode N-

Electrical Characteristics Diagrams

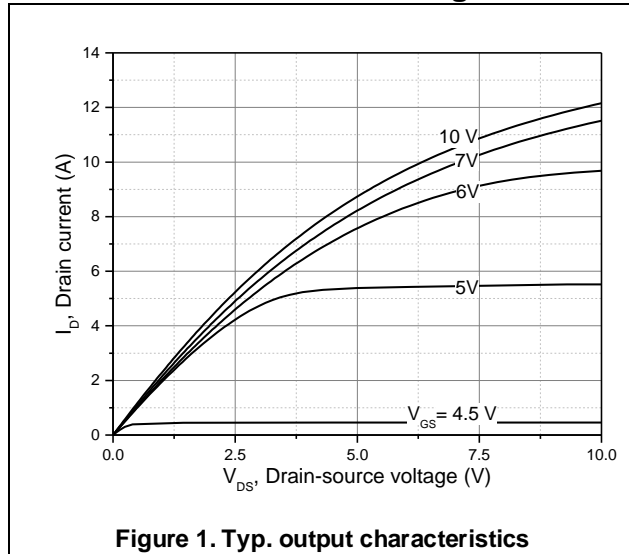


Figure 1. Typ. output characteristics

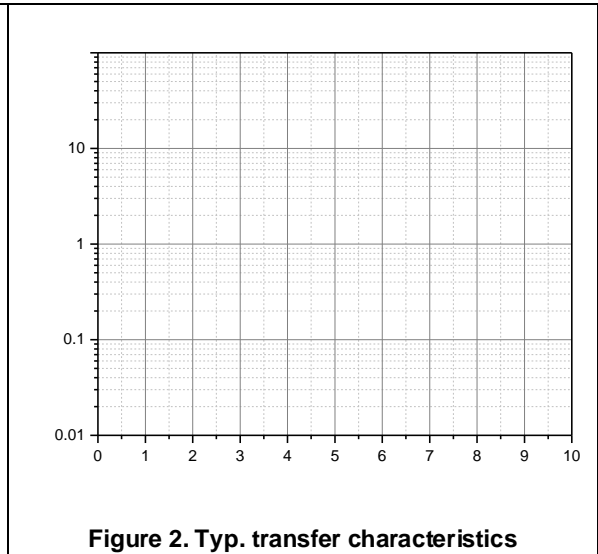


Figure 2. Typ. transfer characteristics

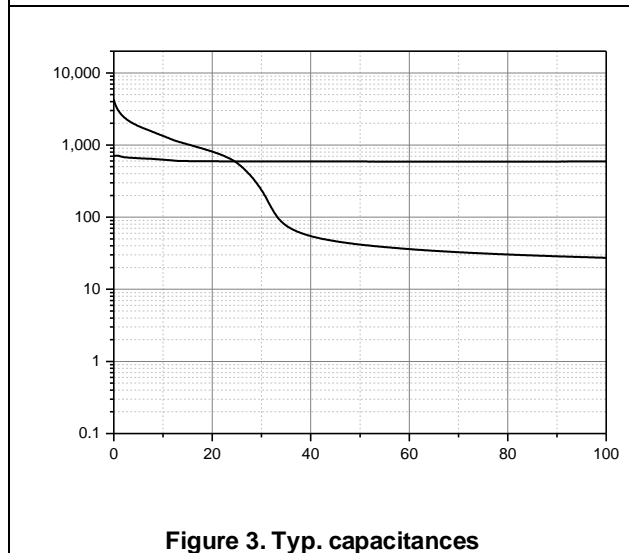


Figure 3. Typ. capacitances

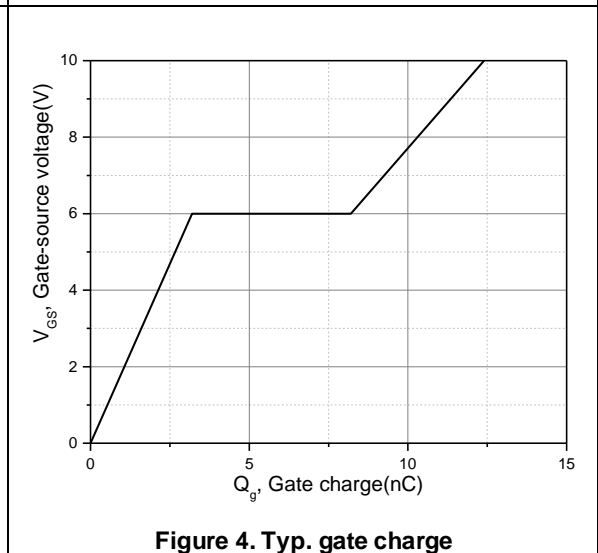


Figure 4. Typ. gate charge

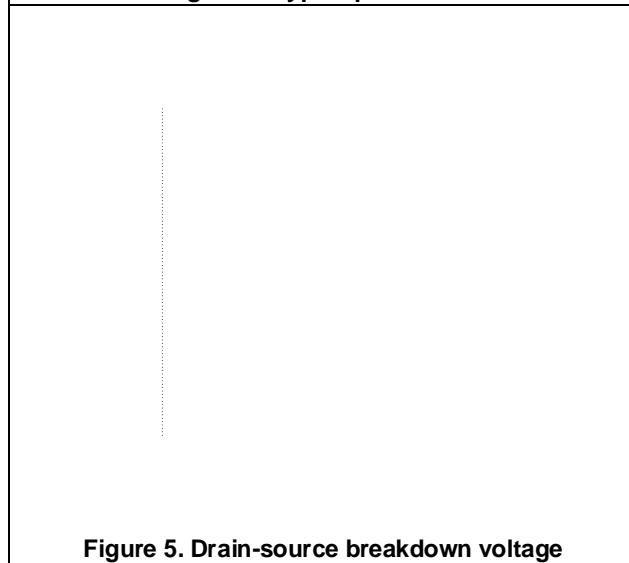


Figure 5. Drain-source breakdown voltage

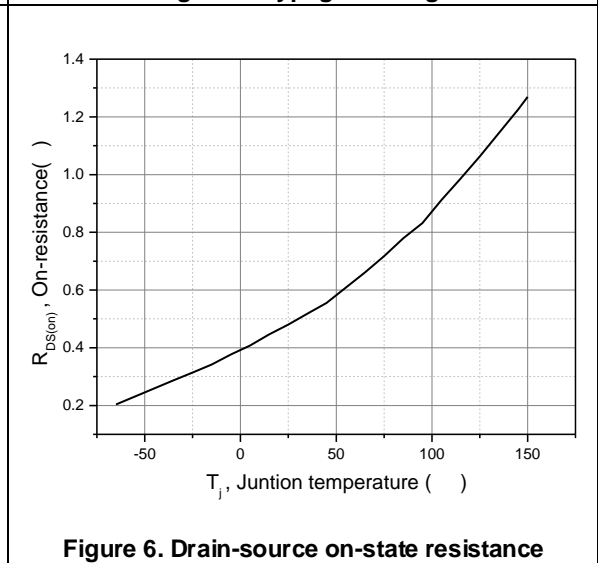
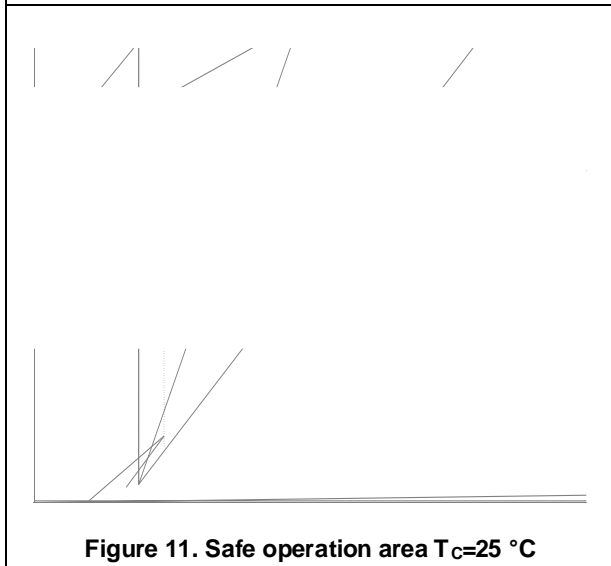
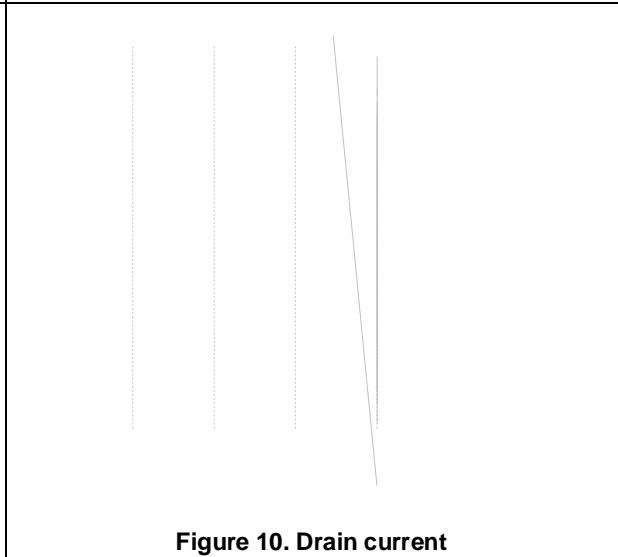
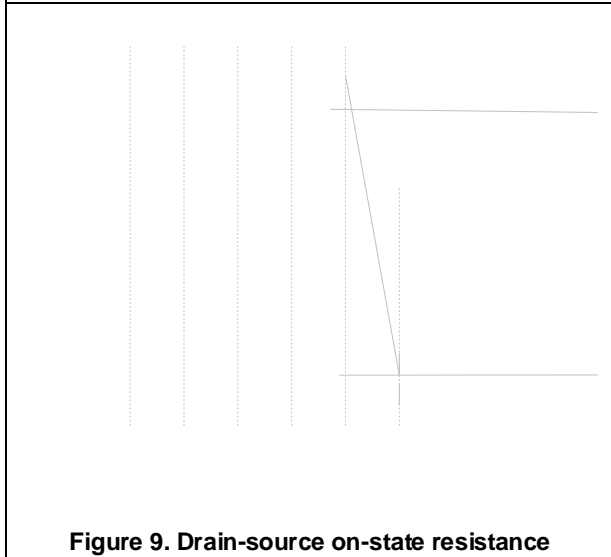
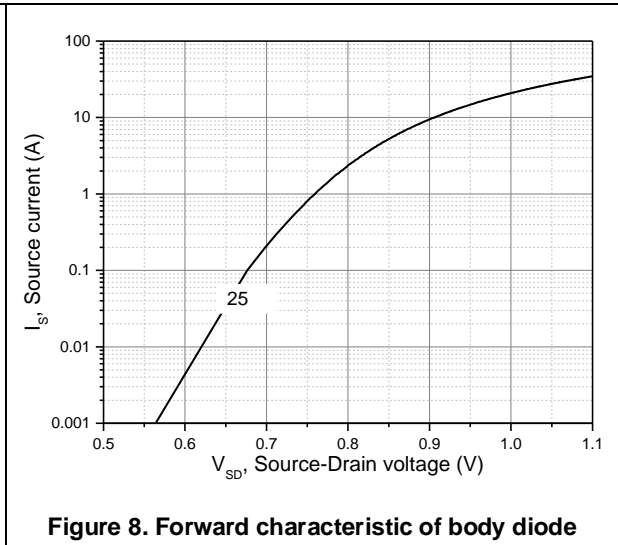
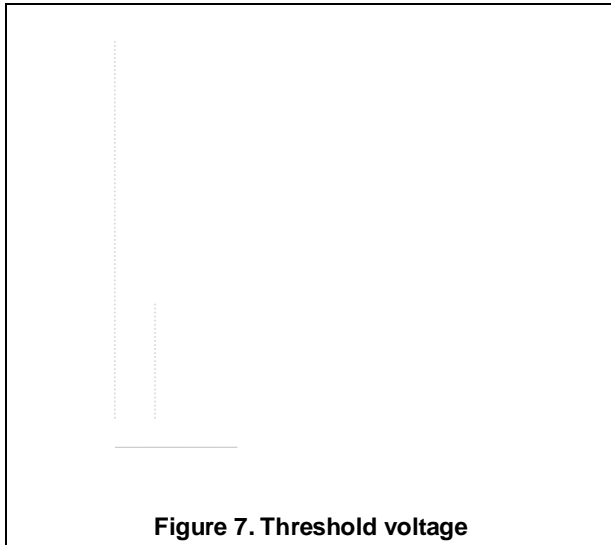


Figure 6. Drain-source on-state resistance



Test circuits and waveforms

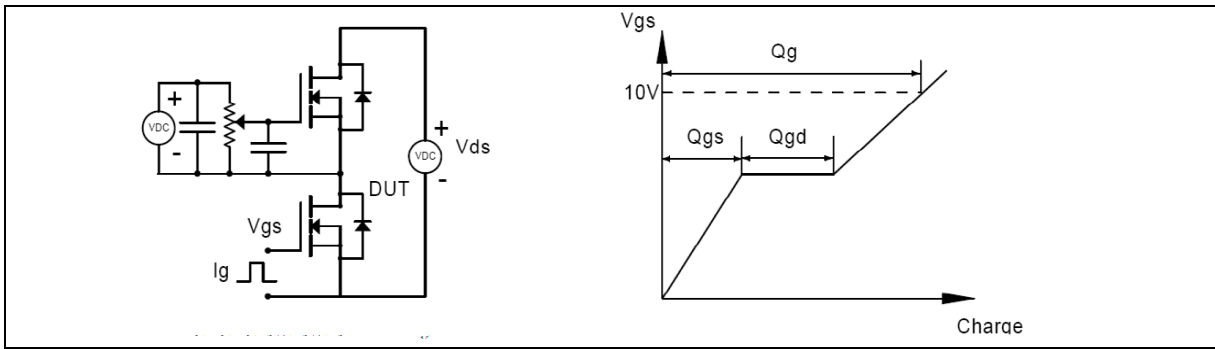


Figure 1. Gate charge test circuit & waveform

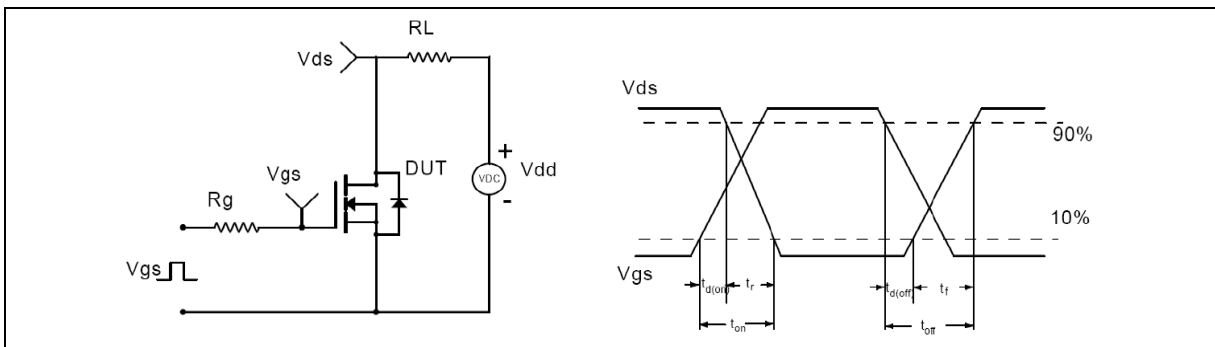


Figure 2. Switching time test circuit & waveforms

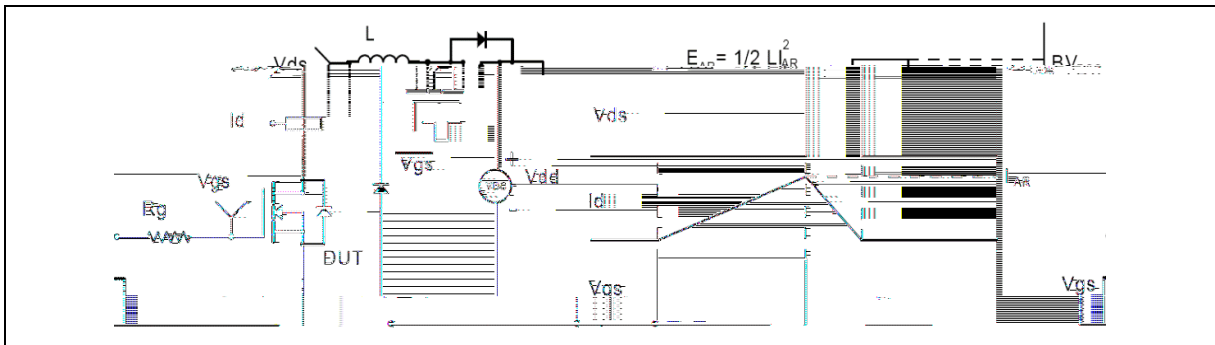
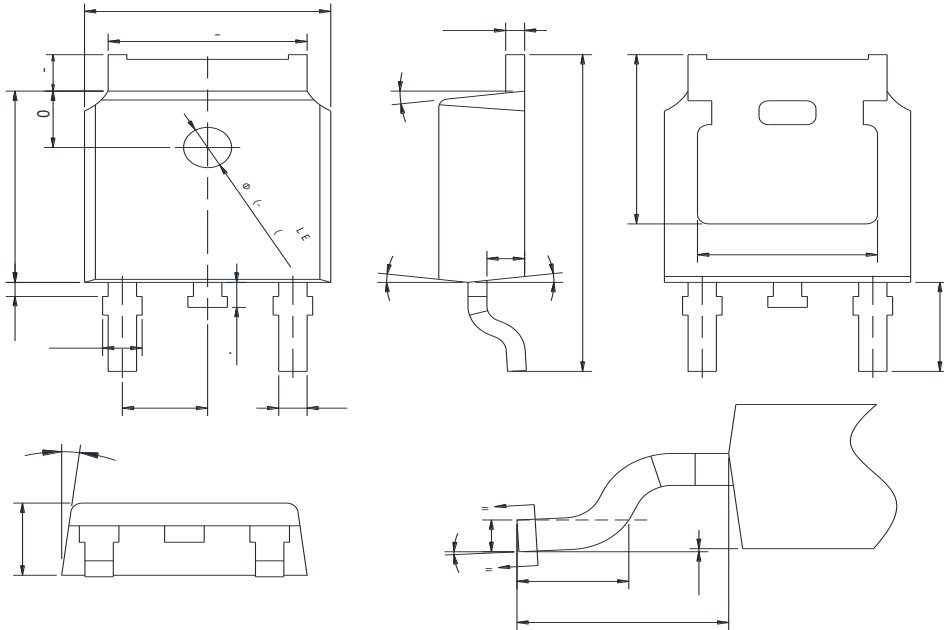


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms



Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



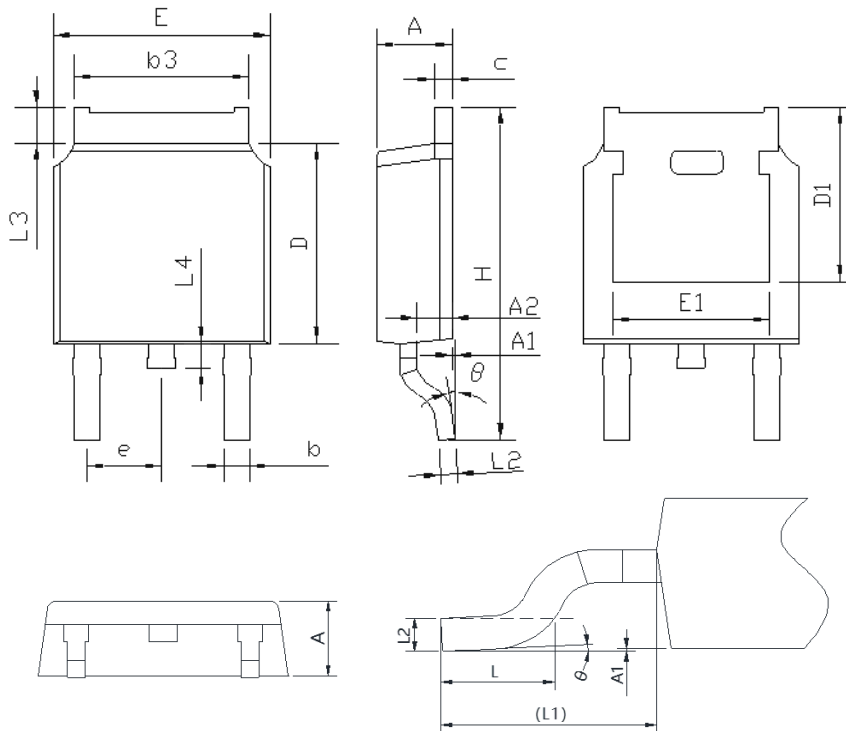
Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.38
A1	0.00	-	0.10
A2	0.90	1.01	1.10
b	0.72	-	0.85
b1	0.71	0.76	0.81
b2	0.72	-	0.90
b3	5.13	5.33	5.46
c	0.47	-	0.60
c1	0.46	0.51	0.56
c2	0.47	-	0.60
D	6.00	6.10	6.20
D1	5.25	-	-
E	6.50	6.60	6.70
E1	4.70	-	-
e	2.186	2.286	2.386
H	9.80	10.10	10.40
L	1.40	1.50	1.70
L1	2.90 REF		
L2	0.508 BSC		
L3	0.90	-	1.25
L4	0.60	0.80	1.00
L5	0.15	-	0.75
L6	1.80 REF		
	0	-	

Version 1: TO252-J package outline dimension

Package Information

Symbol	mm	
	Min	Max
A	2.18	2.39
A1	-	0.13
b	0.65	0.89
b1	0.64	0.79
b2	0.76	1.13
b3	4.95	5.46
c	0.46	0.61
c1	0.41	0.56
c2	0.46	0.60
D	5.97	6.22
D1	5.21	-
E	6.35	6.73
E1	4.32	-
e	2.29 BSC	
H	9.94	10.34
L	1.50	1.78
L1	2.74 REF	
L2	0.51 BSC	
L3	0.89	1.27
L4	-	-

Package Information



Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.38
A1	0.00	-	0.20
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30 REF		
E	6.40	6.60	6.73
E1	4.63	-	-
e	2.286 BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90 REF		
L2	0.51 BSC		
L3	0.88	-	1.28
L4	0.50	-	1.00
	0	-	

Version 3: TO252-P package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO252-J	2500	2	5000	5	25000
TO252-S	2500	1	2500	10	25000
TO252-P	2500	2	5000	5	25000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG65R580DEF	TO252	yes	yes	yes