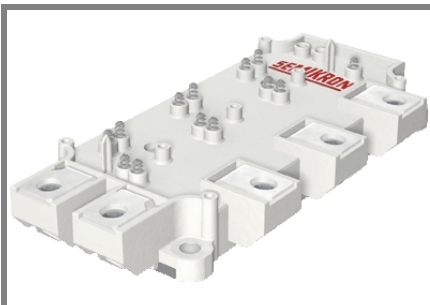


SEMiX 201GD128Ds



SEMiX® 13s

SPT IGBT Modules

SEMiX 201GD128Ds

Preliminary Data

Features

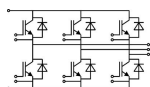
- Homogeneous Si
- SPT = Soft-Punch-Through technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

- AC inverter drives
- UPS
- Electronic welders up to 20 kHz

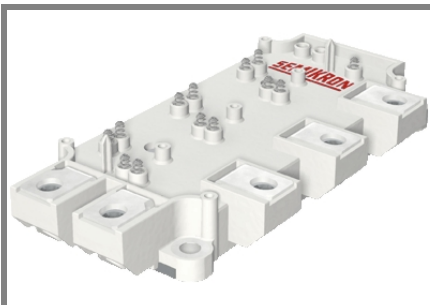
Absolute Maximum Ratings		$T_{case} = 25^{\circ}C$, unless otherwise specified			
Symbol	Conditions	Values			Units
IGBT					
V_{CES}	$T_j = 25^{\circ}C$	1200			V
I_C	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	200		A
		$T_{case} = 80^{\circ}C$	140		A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	200			A
V_{GES}		± 20			V
t_{psc}	$V_{CC} = 600 V$; $V_{GE} \leq 20 V$; $T_j = 125^{\circ}C$ $V_{CES} < 1200 V$	10			μs
Inverse Diode					
I_F	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	155		A
		$T_{case} = 80^{\circ}C$	105		A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	200			A
I_{FSM}	$t_p = 10 ms$; sin.	$T_j = 25^{\circ}C$	1100		A
Module					
$I_{t(RMS)}$		600			A
T_{vj}		-40 ... +150			$^{\circ}C$
T_{stg}		-40 ... +125			$^{\circ}C$
V_{isol}	AC, 1 min.	4000			V

Characteristics		$T_{case} = 25^{\circ}C$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 4 mA$	4,5	5	6,5	V
I_{CES}	$V_{GE} = 0 V$, $V_{CE} = V_{CES}$			0,3	mA
V_{CE0}		$T_j = 25^{\circ}C$	1		V
		$T_j = 125^{\circ}C$	0,9		V
r_{CE}	$V_{GE} = 15 V$	$T_j = 25^{\circ}C$	9		$m\Omega$
		$T_j = 125^{\circ}C$	12		$m\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 100 A$, $V_{GE} = 15 V$	$T_j = 25^{\circ}C_{chiplev.}$	1,9		V
		$T_j = 125^{\circ}C_{chiplev.}$	2,1		V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0 V$	9,4			nF
C_{oes}		0,6			nF
C_{res}		0,4			nF
Q_G	$V_{GE} = -8 V \dots +15 V$	960			nC
$t_{d(on)}$	$R_{Gon} = 4 \Omega$	$V_{CC} = 600V$ $I_{Cnom} = 100A$	250		ns
t_r			45		ns
E_{on}	$R_{Goff} = 4 \Omega$	$T_j = 125^{\circ}C$	10		mJ
$t_{d(off)}$			445		ns
t_f			60		ns
E_{off}			11		mJ
$R_{th(j-c)}$	per IGBT	0,15			K/W



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SEMiX 201GD128Ds



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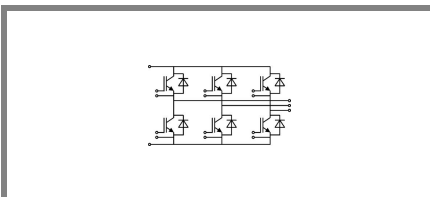
Preliminary Data

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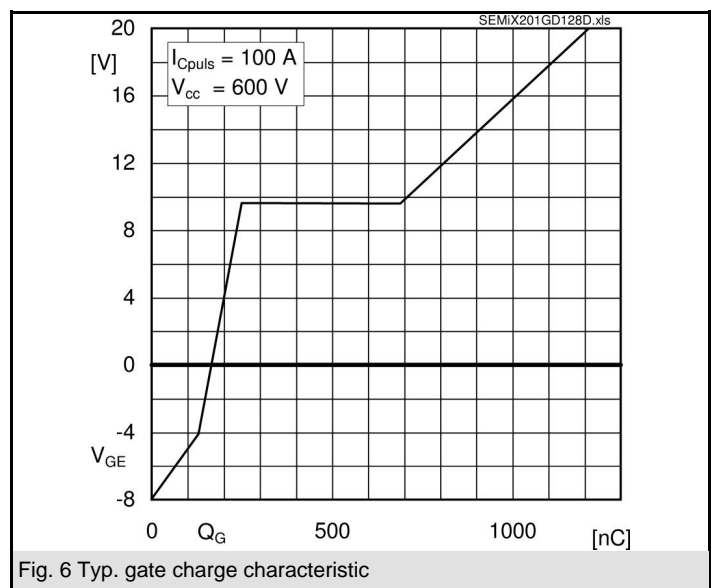
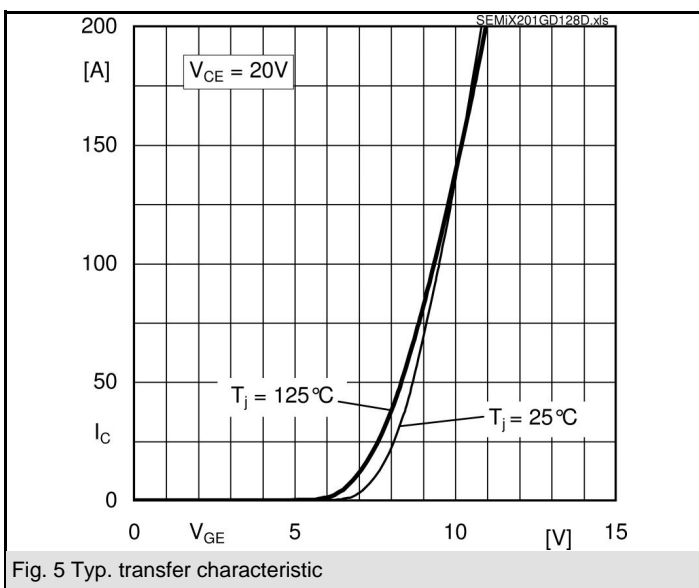
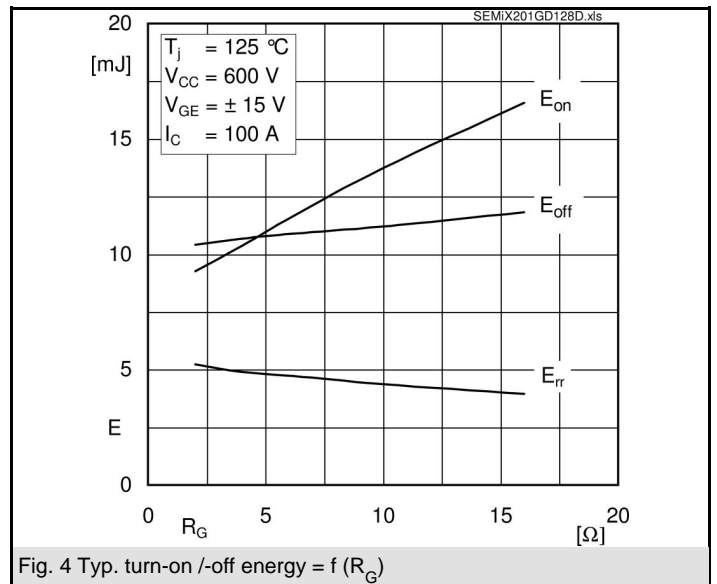
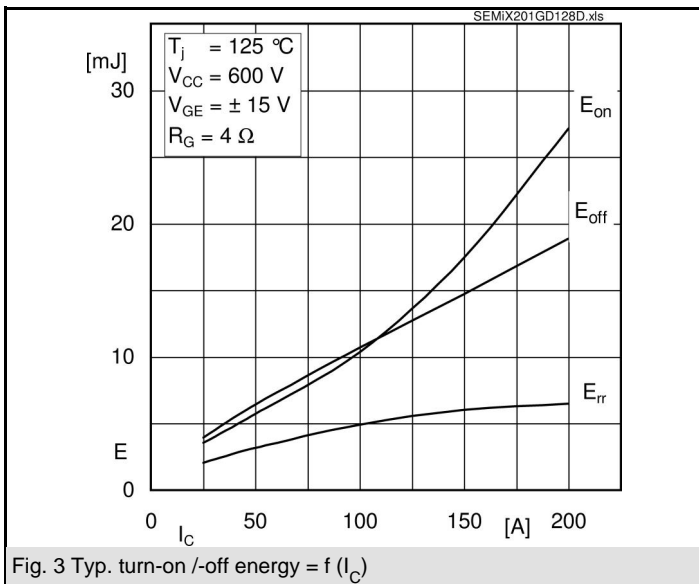
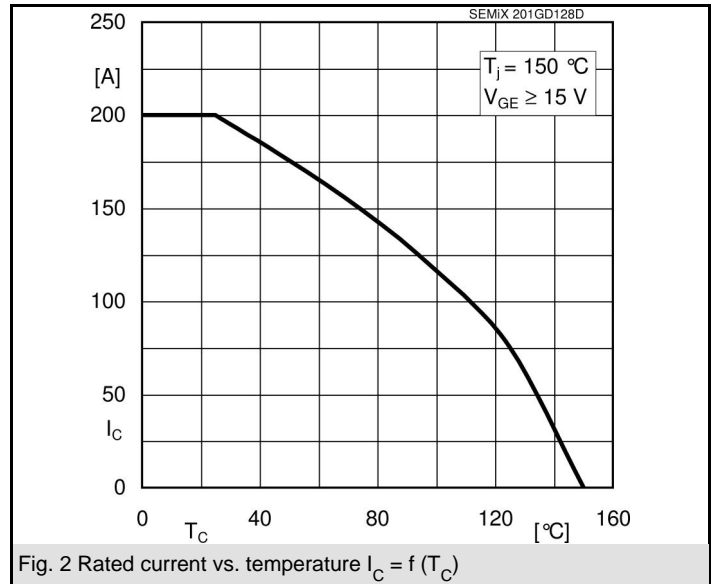
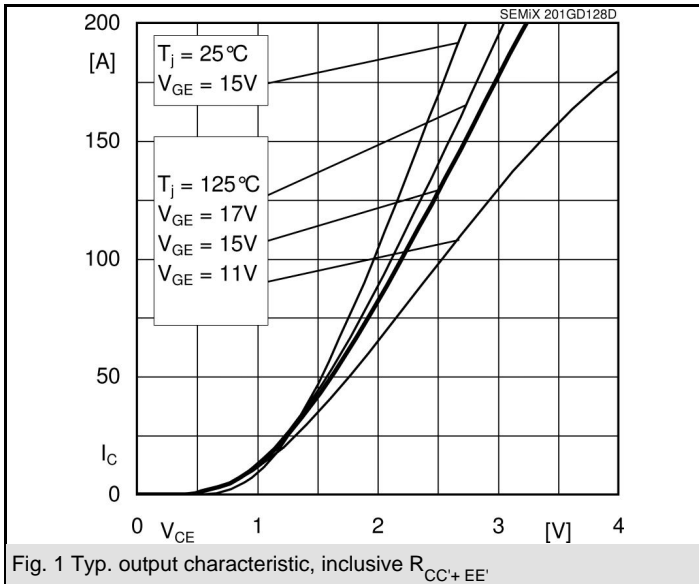


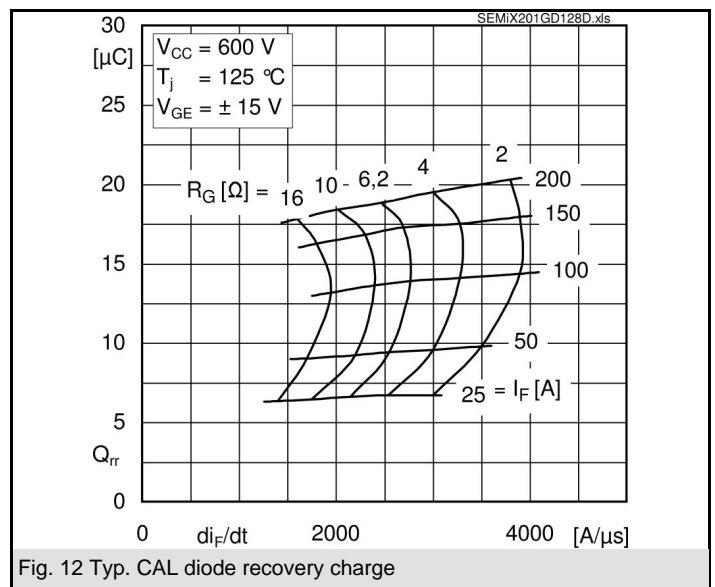
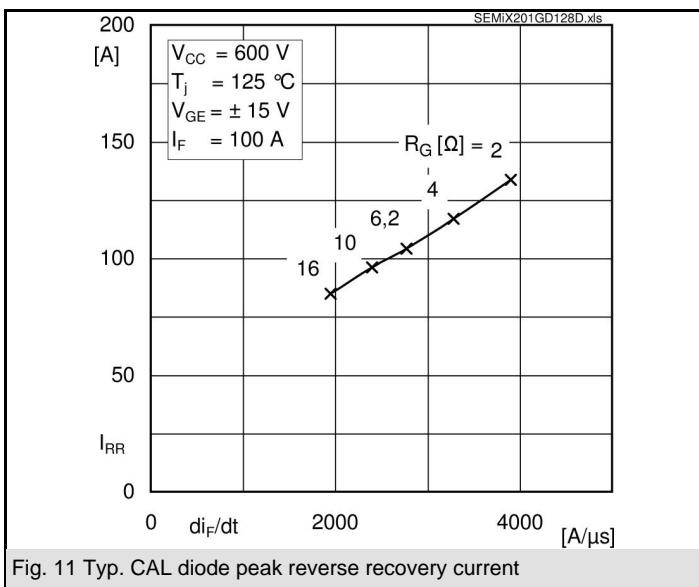
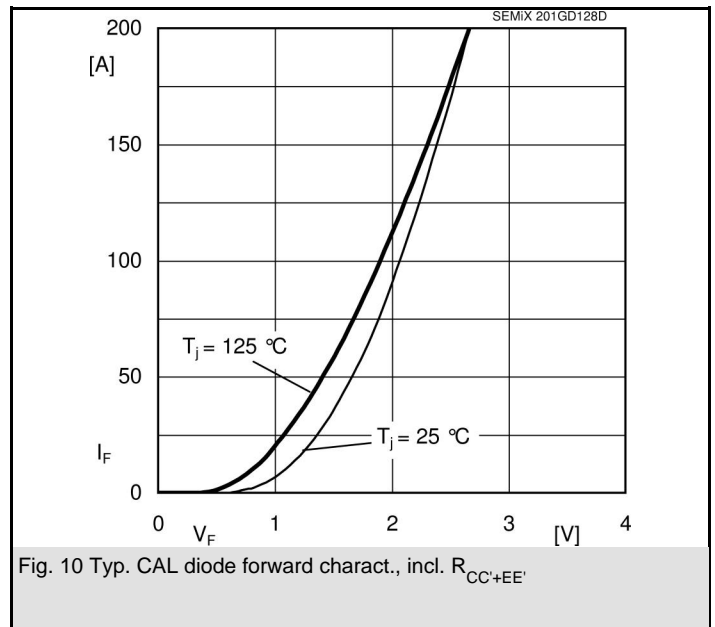
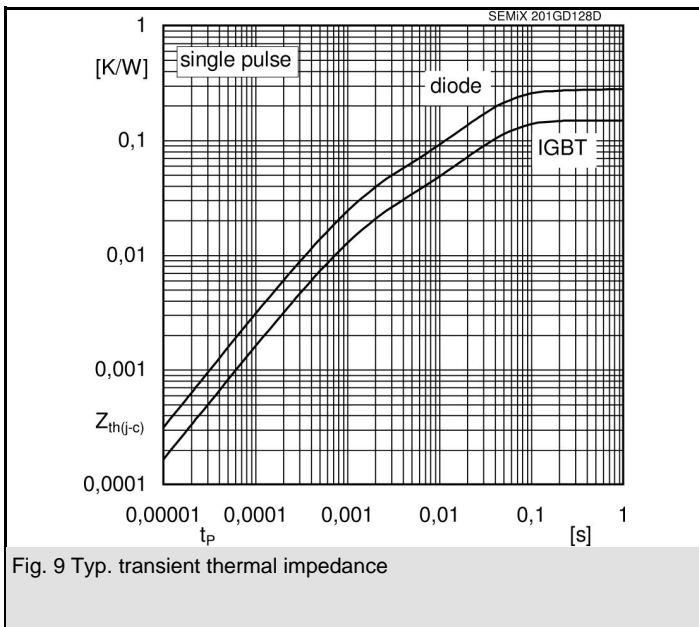
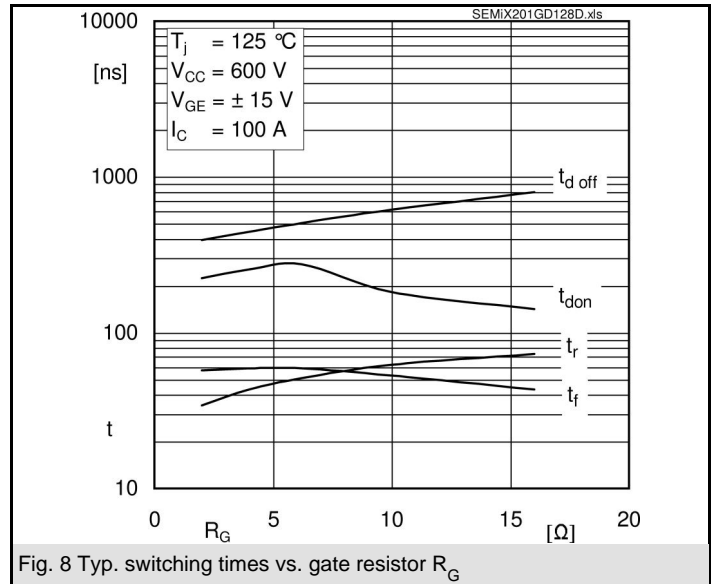
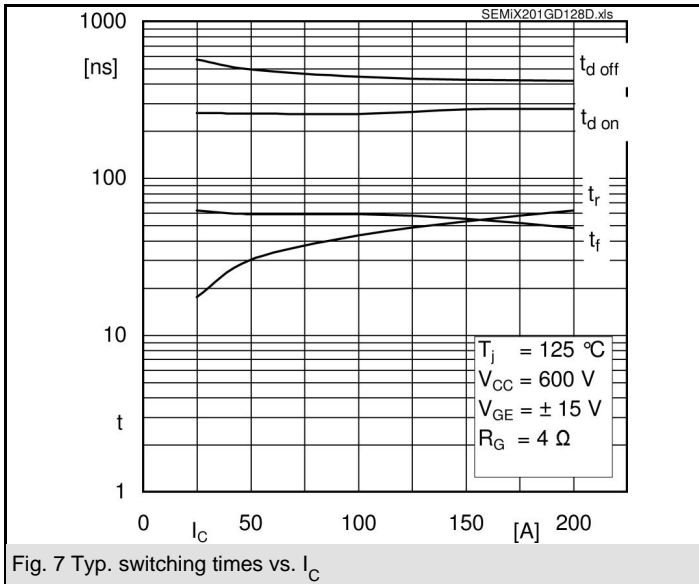
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Characteristics		min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 100 \text{ A}; V_{GE} = 0 \text{ V}$		2	2,5	V
	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$				
	$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$		1,8	2,3	V
V_{F0}			1,1	1,45	V
	$T_j = 25 \text{ }^\circ\text{C}$				
	$T_j = 125 \text{ }^\circ\text{C}$		0,85	1,2	V
r_F			9	10,5	m Ω
	$T_j = 25 \text{ }^\circ\text{C}$				
	$T_j = 125 \text{ }^\circ\text{C}$		9,5	11	m Ω
I_{RRM}	$I_{Fnom} = 100 \text{ A}$		120		A
Q_{rr}	$di/dt = 3300 \text{ A}/\mu\text{s}$		14		μC
E_{rr}	$V_{GE} = -15 \text{ V}; V_{CC} = 600 \text{ V}$		4,9		mJ
$R_{th(j-c)D}$	per diode			0,28	K/W
Module					
L_{CE}			20		nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25 \text{ }^\circ\text{C}$	0,7		m Ω
		$T_{case} = 125 \text{ }^\circ\text{C}$	1		m Ω
$R_{th(c-s)}$	per module		0,04		K/W
M_s	to heat sink (M5)		3	5	Nm
M_t	to terminals (M6)		2,5	5	Nm
w				350	g
Temperature sensor					
R_{100}	$T_c = 100 \text{ }^\circ\text{C}$ ($R_{25} = 5 \text{ k}\Omega$)		0,493 \pm 5%		k Ω
$B_{100/125}$	$R(T) = R_{100} \exp[B_{100/125} (1/T - 1/T_{100})]$; $T[\text{K}]; B$		3550 \pm 2%		K

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

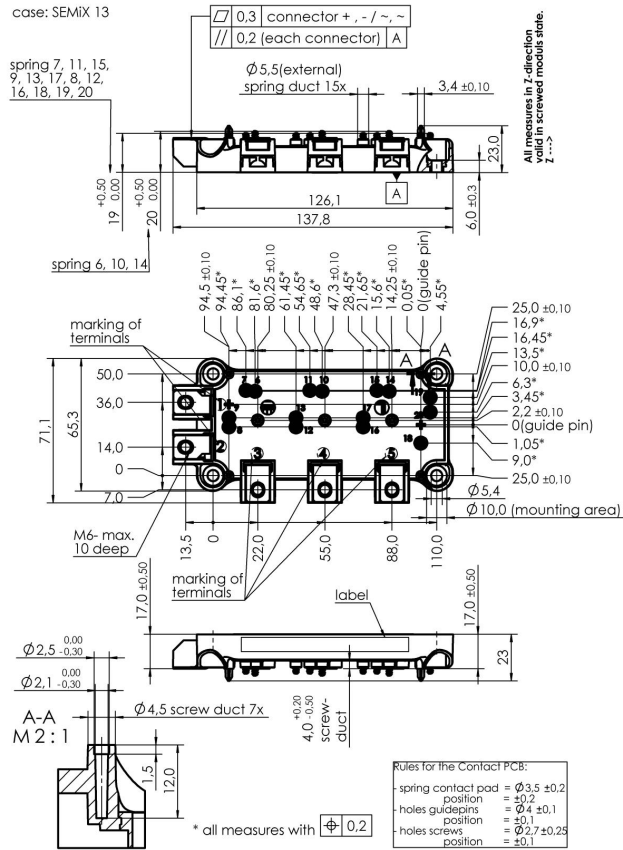




SEMIX 201GD128Ds

UL Recognized
File no. E 63 532

Dimensions in mm



Case SEMiX 3

