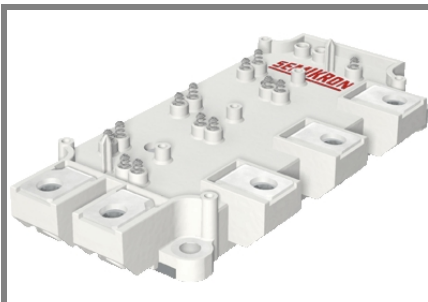


SEMiX 101GD128Ds



SEMiX® 13s

SPT IGBT Modules

SEMiX 101GD128Ds

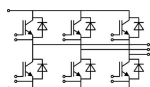
Preliminary Data

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

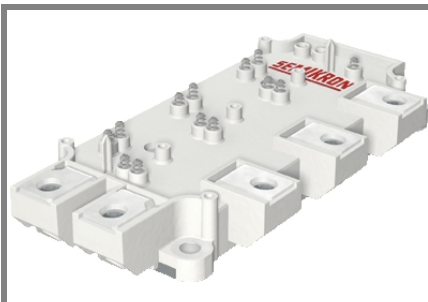


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Absolute Maximum Ratings				$T_{case} = 25^{\circ}C$, unless otherwise specified	
Symbol	Conditions		Values	Units	
IGBT					
V_{CES}	$T_j = 25^{\circ}C$		1200	V	
I_C	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	100	A	
		$T_{case} = 80^{\circ}C$	70	A	
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$		100	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	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	85	A	
		$T_{case} = 80^{\circ}C$	60	A	
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$		100	A	
I_{FSM}	$t_p = 10 ms$; sin.	$T_j = 25^{\circ}C$	550	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°C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 2 mA		4,5	5	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _J = 25 °C			0,3	mA
V _{CE0}		T _J = 25 °C		1	1,15	V
		T _J = 125 °C		0,9	1,05	V
r _{CE}	V _{GE} = 15 V	T _J = 25°C		18	24	mΩ
		T _J = 125°C		24	30	mΩ
V _{CE(sat)}	I _{Cnom} = 50 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.}		1,9	2,35	V
		T _J = 125°C _{chiplev.}		2,1	2,55	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		4,5		nF
C _{oes}				0,33		nF
C _{res}				0,21		nF
Q _G	V _{GE} = -8 V ... +15 V			480		nC
t _{d(on)}	R _{Gon} = 8 Ω	V _{CC} = 600V I _{Cnom} = 50A T _J = 125 °C		115		ns
t _r				30		ns
E _{on}			5,2		mJ	
t _{d(off)}	R _{Goff} = 8 Ω			340		ns
t _f				55		ns
E _{off}			5,5		mJ	
R _{th(j-c)}	per IGBT				0,28	K/W

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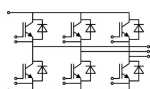
Typical Applications

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- UPS
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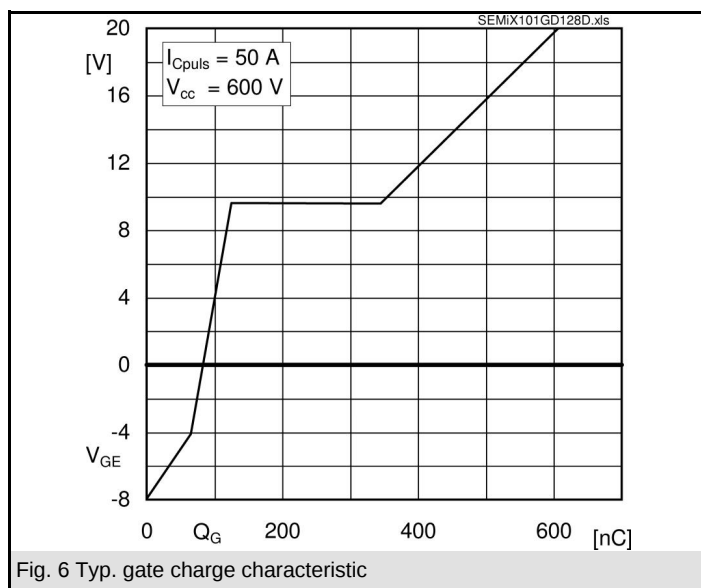
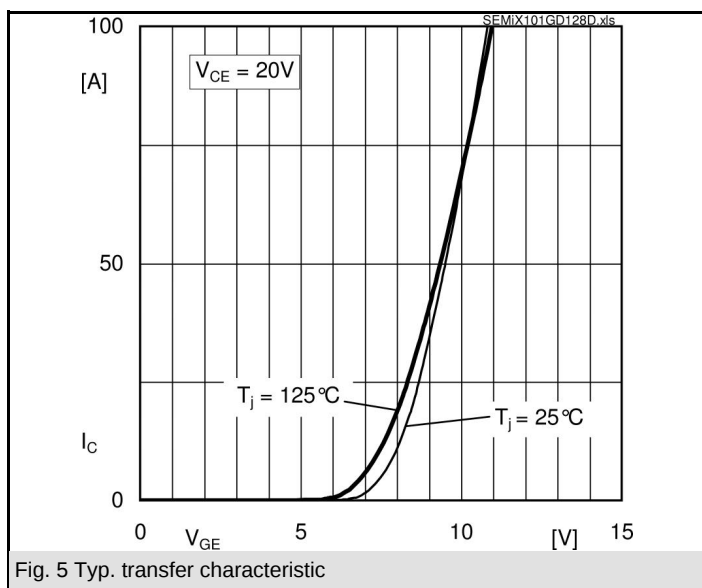
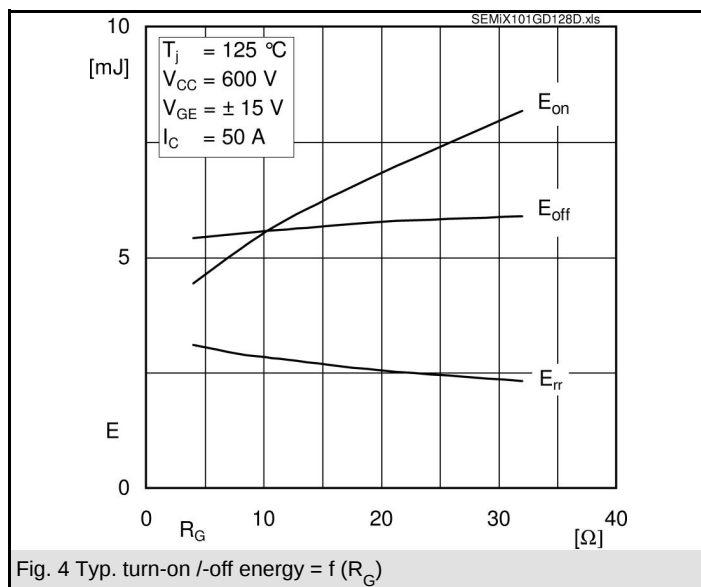
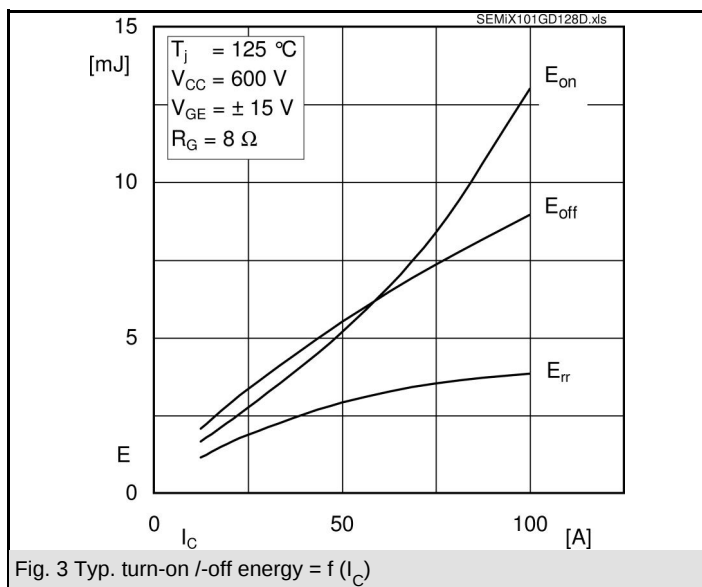
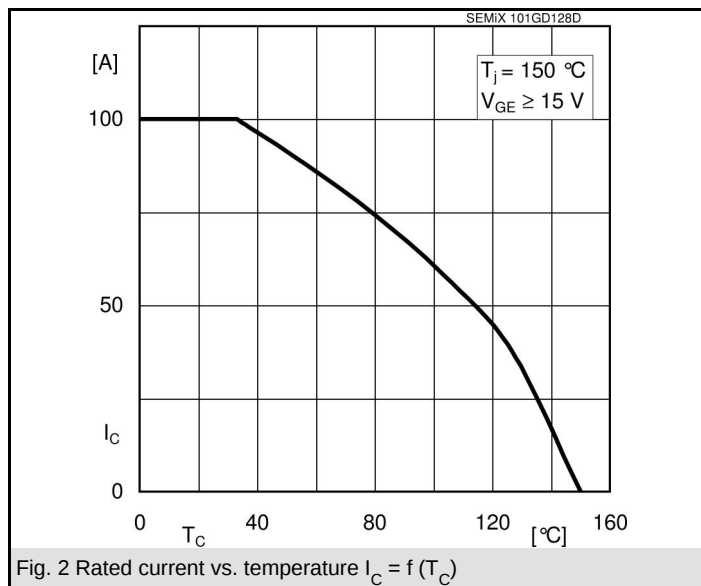
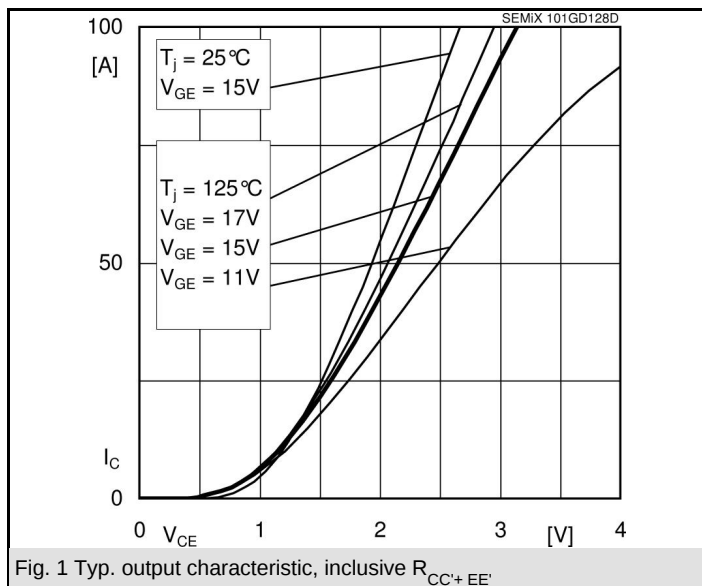
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$				
	$T_j = 25 \text{ }^{\circ}\text{C}_{chiplev.}$		2	2,5	V
	$T_j = 125 \text{ }^{\circ}\text{C}_{chiplev.}$		1,8	2,3	V
V_{F0}	$T_j = 25 \text{ }^{\circ}\text{C}$		1,1	1,45	V
	$T_j = 125 \text{ }^{\circ}\text{C}$		0,85	1,2	V
r_F	$T_j = 25 \text{ }^{\circ}\text{C}$		18	21	mΩ
	$T_j = 125 \text{ }^{\circ}\text{C}$		19	22	mΩ
I_{RRM}	$I_{Fnom} = 50 \text{ A}$		77		A
Q_{rr}	$di/dt = 2840 \text{ A}/\mu\text{s}$		7,8		μC
E_{rr}	$V_{GE} = -15 \text{ V}; V_{CC} = 600 \text{ V}$		2,9		mJ
$R_{th(j-c)D}$	per diode			0,46	K/W
Module					
L_{CE}			20		nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25 \text{ }^{\circ}\text{C}$	0,7		mΩ
		$T_{case} = 125 \text{ }^{\circ}\text{C}$	1		mΩ
$R_{th(c-s)}$	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}	$T_c = 100^{\circ}\text{C}$ ($R_{25} = 5 \text{ k}\Omega$)		0,493±5%		kΩ
$B_{100/125}$	$R(T) = R_{100} \exp[B_{100/125}(1/T - 1/T_{100})]$; $T[\text{K}]; B$		3550±2%		K

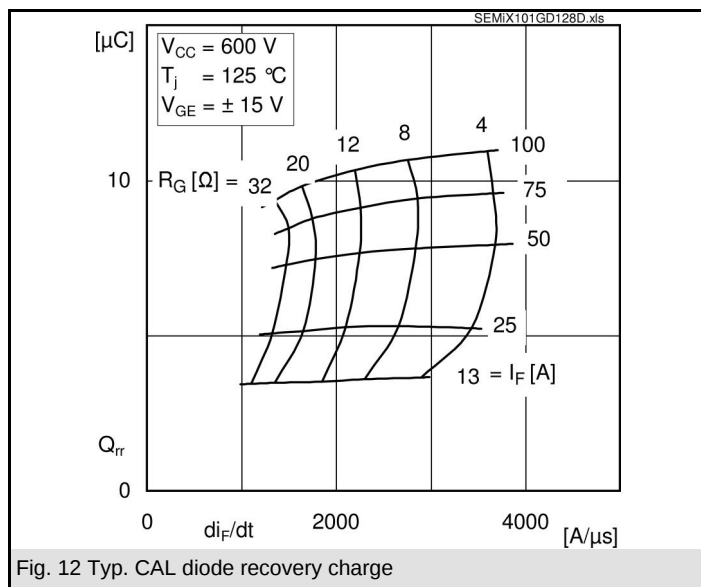
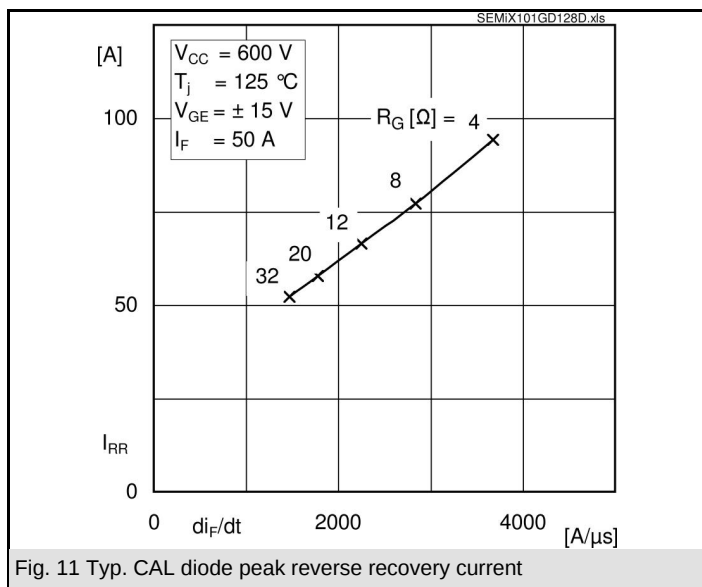
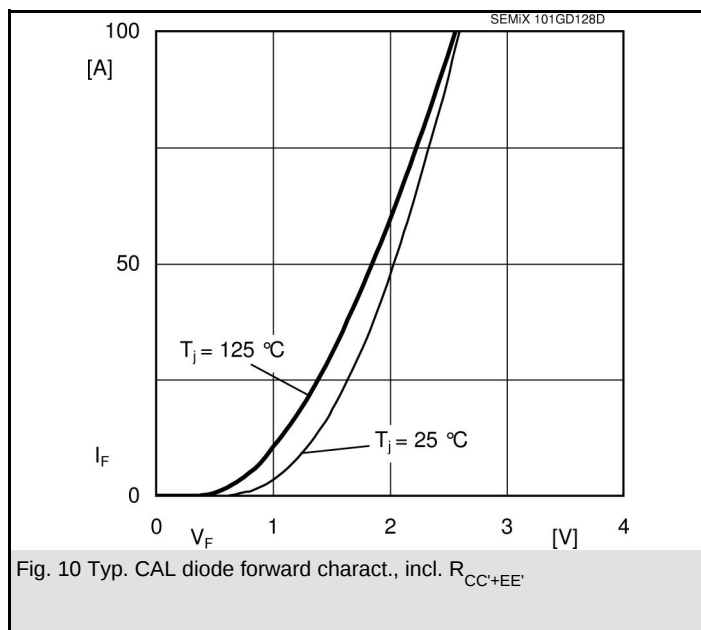
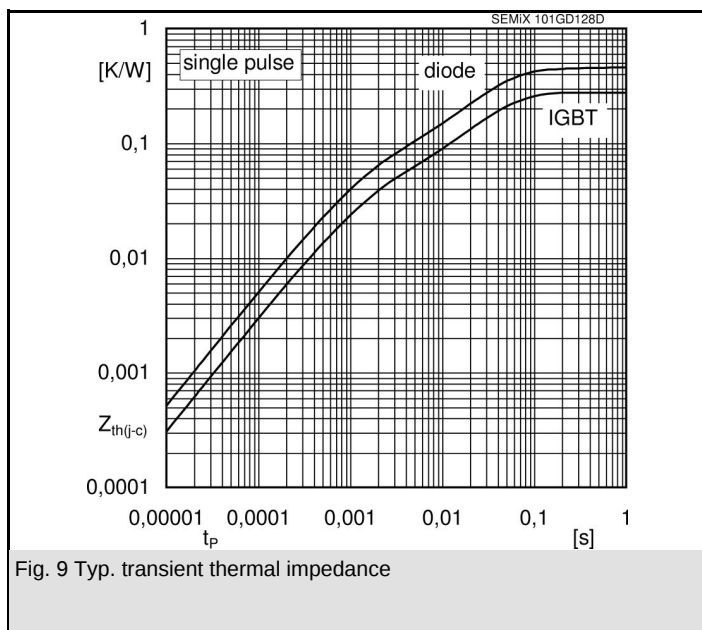
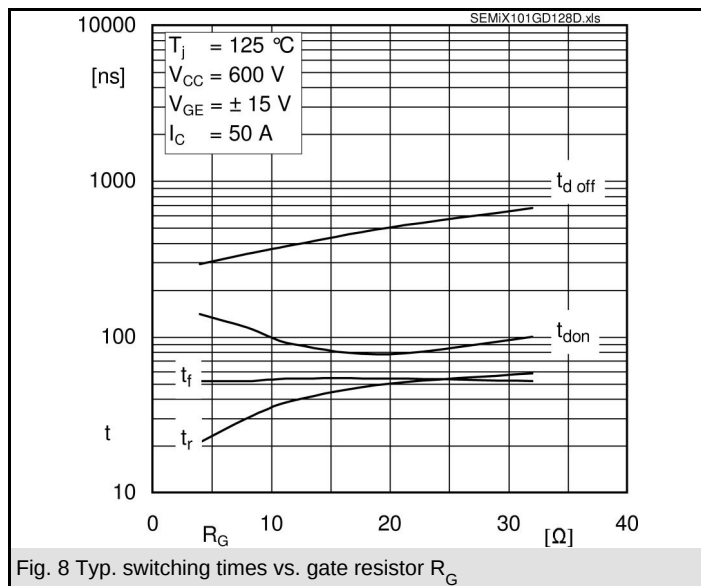
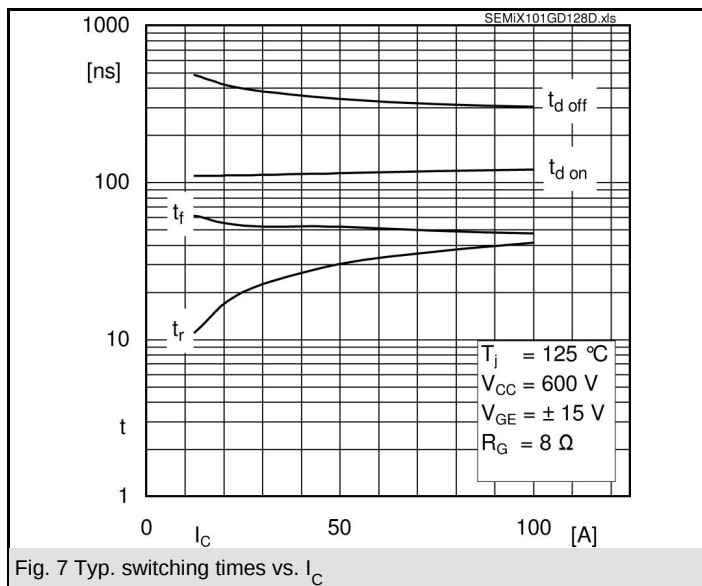
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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

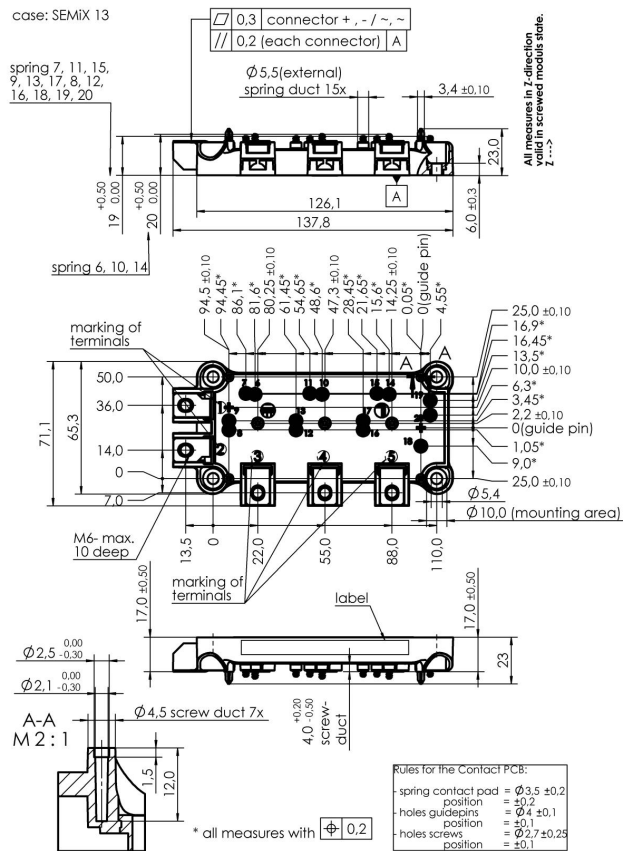


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SEMiX 101GD128Ds



Case SEMiX 13s

