

Low V_F Schottky barrier diode

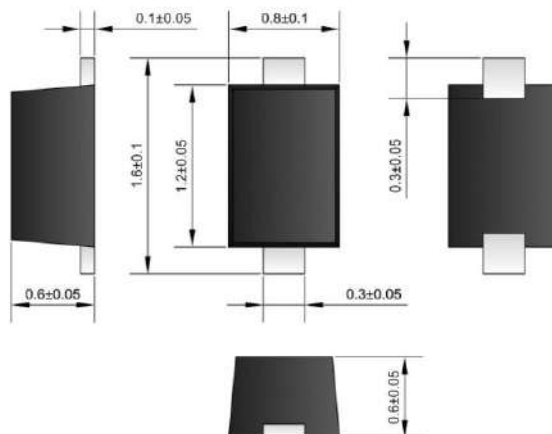
Features:

- Forward current: 0.5 A
- Reverse voltage: 40 V
- Very low forward voltage
- Guard ring protected
- Ultra small SMD package.

Applications :

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low current rectification
- Low power consumption applications (e.g. handheld devices).

SOD523



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	40	V
I_F	continuous forward current		–	500	mA
I_{FRM}	repetitive peak forward current	$t_p = 1 \text{ ms}$; $\delta \leq 0.25$	–	3.5	A
I_{FSM}	non-repetitive peak forward current	$t = 8 \text{ ms}$ square wave	–	6	A
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	125	°C
T_{amb}	operating ambient temperature		–65	+125	°C

ELECTRICAL CHARACTERISTICS

$T_{amb} = 25 \text{ °C}$; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	continuous forward voltage	see Fig.2 $I_F = 0.1 \text{ mA}$ $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 100 \text{ mA}$ $I_F = 500 \text{ mA}$	120 180 245 320 430	180 240 290 380 480	mV mV mV mV mV
I_R	continuous reverse current	$V_R = 10 \text{ V}$; see Fig.3; note 1	7	30	μA
C_d	diode capacitance	$V_R = 1 \text{ V}$; $f = 1 \text{ MHz}$; see Fig.4	24	30	pF

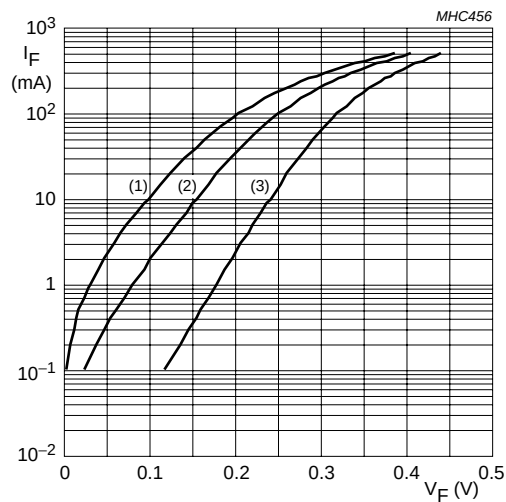
Note

1. Pulsed test: $t_p = 300 \text{ }\mu\text{s}$; $\delta = 0.02$.

THERMAL CHARACTERISTICS

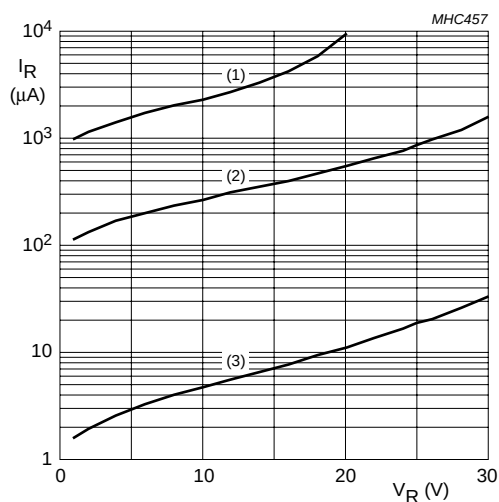
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th j-a}$	thermal resistance from junction to ambient	note 1	400	K/W

GRAPHICAL DATA



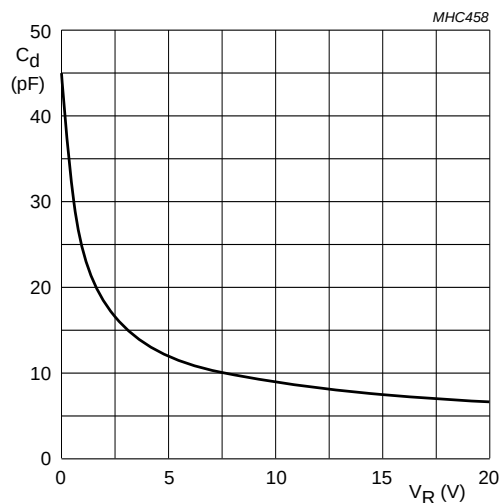
- (1) $T_{amb} = 125\text{ }^{\circ}\text{C}.$
- (2) $T_{amb} = 85\text{ }^{\circ}\text{C}.$
- (3) $T_{amb} = 25\text{ }^{\circ}\text{C}.$

Fig.2 Forward current as a function of forward voltage; typical values.



- (1) $T_{amb} = 125\text{ }^{\circ}\text{C}.$
- (2) $T_{amb} = 85\text{ }^{\circ}\text{C}.$
- (3) $T_{amb} = 25\text{ }^{\circ}\text{C}.$

Fig.3 Reverse current as a function of reverse voltage; typical values.



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}.$

Fig.4 Diode capacitance as a function of reverse voltage; typical values.