

## 1 Maximum ratings

at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

**Table 2 Maximum ratings**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Continuous drain current <sup>1)</sup>	$I_D$	-	-	9 6	A	$T_C=25^\circ\text{C}$ $T_C=100^\circ\text{C}$
Pulsed drain current <sup>2)</sup>	$I_{D,pulse}$	-	-	26	A	$T_C=25^\circ\text{C}$
Avalanche energy, single pulse	$E_{AS}$	-	-	27	mJ	$I_D=2.5\text{A}$ ; $V_{DD}=50\text{V}$ ; see table 10
Avalanche energy, repetitive	$E_{AR}$	-	-	0.14	mJ	$I_D=2.5\text{A}$ ; $V_{DD}=50\text{V}$ ; see table 10
Avalanche current, single pulse	$I_{AS}$	-	-	2.5	A	-
MOSFET dv/dt ruggedness	dv/dt	-	-	80	V/ns	$V_{DS}=0\dots400\text{V}$
Gate source voltage (static)	$V_{GS}$	-20	-	20	V	static;
Gate source voltage (dynamic)	$V_{GS}$	-30	-	30	V	AC ( $f>1\text{ Hz}$ )
Power dissipation	$P_{tot}$	-	-	41	W	$T_C=25^\circ\text{C}$
Storage temperature	$T_{stg}$	-40	-	150	$^\circ\text{C}$	-
Operating junction temperature	$T_j$	-40	-	150	$^\circ\text{C}$	-
Mounting torque	-	-	-	-	Ncm	-
Continuous diode forward current	$I_S$	-	-	9	A	$T_C=25^\circ\text{C}$
Diode pulse current <sup>2)</sup>	$I_{S,pulse}$	-	-	26	A	$T_C=25^\circ\text{C}$
Reverse diode dv/dt <sup>3)</sup>	dv/dt	-	-	50	V/ns	$V_{DS}=0\dots400\text{V}$ , $I_{SD}\leq 9\text{A}$ , $T_j=25^\circ\text{C}$ see table 8
Maximum diode commutation speed	di <sub>F</sub> /dt	-	-	900	A/ $\mu\text{s}$	$V_{DS}=0\dots400\text{V}$ , $I_{SD}\leq 9\text{A}$ , $T_j=25^\circ\text{C}$ see table 8
Insulation withstand voltage	$V_{ISO}$	-	-	n.a.	V	$V_{rms}$ , $T_C=25^\circ\text{C}$ , $t=1\text{min}$

<sup>1)</sup> Limited by  $T_{j,max}$ . Maximum Duty Cycle  $D = 0.50$

<sup>2)</sup> Pulse width  $t_p$  limited by  $T_{j,max}$

<sup>3)</sup> Identical low side and high side switch with identical  $R_\theta$

## 2 Thermal characteristics

**Table 3 Thermal characteristics**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Thermal resistance, junction - case	$R_{thJC}$	-	-	3.04	°C/W	-
Thermal resistance, junction - ambient	$R_{thJA}$	-	-	62	°C/W	device on PCB, minimal footprint
Thermal resistance, junction - ambient for SMD version	$R_{thJA}$	-	35	45	°C/W	Device on 40mm*40mm*1.5mm epoxy PCB FR4 with 6cm <sup>2</sup> (one layer, 70µm thickness) copper area for drain connection and cooling. PCB is vertical without air stream cooling.
Soldering temperature, wave & reflow soldering allowed	$T_{sold}$	-	-	260	°C	reflow MSL3