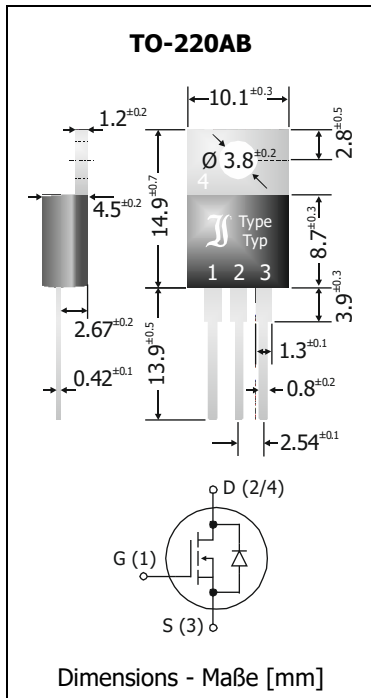


<b>DIT090N06</b> <b>N-Channel Power MOSFET</b> <b>N-Kanal Leistungs-MOSFET</b>	<b>I<sub>D25°C</sub></b> = 90 A <b>R<sub>DS(on)</sub></b> ~ 5.7 mΩ <b>T<sub>jmax</sub></b> = 175°C	<b>V<sub>DSS</sub></b> = 65 V <b>P<sub>D</sub></b> = 160 W <b>E<sub>AS</sub></b> = 450 mJ
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Version 2020-01-27



**Typical Applications**

- DC/DC Converters
- Power Supplies
- DC Drives
- Power Tools
- Commercial grade <sup>1)</sup>

**Features**

- Advanced Trench Technology
- Low on state resistance
- Fast switching times
- Low gate charge
- Avalanche rated
- Compliant to RoHS, REACH, Conflict Minerals <sup>1)</sup>

**Mechanical Data <sup>1)</sup>**

Packed in tubes/cardboards	50/1000
Weight approx.	2.2 g
Case material	UL 94V-0
Solder & assembly conditions	260°C/10s MSL N/A



**Typische Anwendungen**

- Gleichstrom-Wandler
- Stromversorgungen
- Gleichstrom-Antriebe
- Elektrowerkzeuge
- Standardausführung <sup>1)</sup>

**Besonderheiten**

- Advanced Trench Technologie
- Niedriger Einschaltwiderstand
- Schnelle Schaltzeiten
- Niedrige Gate-Ladung
- Avalanche-Charakteristik
- Konform zu RoHS, REACH, Konfliktmineralien <sup>1)</sup>

**Mechanische Daten <sup>1)</sup>**

Verpackt in Stangen/Kartons	Gewicht ca.
	Gehäusematerial
Löt- und Einbaubedingungen	

**Maximum ratings <sup>2)</sup>**

**Grenzwerte <sup>2)</sup>**

		<b>DIT090N06</b>	
Drain-Source voltage Drain-Source-Spannung	$V_{GS} = 0 \text{ V (short)}$	$V_{DSS}$	65 V
Gate-Source-voltage continuous Gate-Source-Spannung dauernd		$V_{GSS}$	± 20 V
Power dissipation Verlustleistung	$T_C = 25^\circ\text{C} \text{ }^3)$	$P_{tot}$	160 W
Drain current continuous Drainstrom dauernd	$T_C = 25^\circ\text{C} \text{ }^3)$	$I_D$	90 A
Drain current continuous Drainstrom dauernd	$T_C = 100^\circ\text{C} \text{ }^3)$	$I_D$	62 A
Peak Drain current – Drain-Spitzenstrom	<sup>4)</sup>	$I_{DM}$	310 A
Source current continuous Sourcestrom dauernd	$T_C = 25^\circ\text{C} \text{ }^3)$	$I_S$	30 A
Peak Source current – Source-Spitzenstrom	$V_{GS} = 0 \text{ V}, t_p = 300 \mu\text{s}$	$I_{SM}$	78 A
Single pulse avalanche energy Einzelpuls Avalanche-Energie (Fig. 1)	$V_{DD} = 35 \text{ V}, V_G = 10 \text{ V}$ $L = 0.5 \text{ mH}, R_G = 25 \Omega$	$E_{AS}$	450 mJ
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		$T_j$ $T_s$	-55...+175°C -55...+175°C

1 Please note the [detailed information on our website](#) or at the beginning of the data book  
Bitte beachten Sie die [detaillierten Hinweise auf unserer Internetseite](#) bzw. am Anfang des Datenbuches  
2  $T_A = 25^\circ\text{C}$ , unless otherwise specified –  $T_A = 25^\circ\text{C}$ , wenn nicht anders angegeben  
3 Measured at heat flange – Gemessen an der Kühlfahne  
4 Pulse width refer to SOA diagram – Pulsbreite siehe SOA-Diagramm

**Characteristics (static)**
**Kennwerte (statisch)**

		$T_j = 25^\circ\text{C}$	Min.	Typ.	Max.
Drain-Source breakdown voltage – Drain-Source-Durchbruchspannung	$I_D = 250 \mu\text{A}$ $V_{GS} = 0 \text{ V (short)}$	$V_{(BR)DSS}$	70 V	–	–
Drain-Source leakage current – Drain-Source Leckstrom					
Gate-Body leakage current – Gate-Substrat Leckstrom	$V_{GS} = \pm 20 \text{ V}$ $V_{DS} = 0 \text{ V (short)}$	$I_{GSS}$	–	–	$\pm 100 \text{ nA}$
Gate-Source threshold voltage – Gate-Source Schwellspannung					
Drain-Source on-state resistance – Drain-Source Einschaltwiderstand	$V_{GS} = 10 \text{ V}$ $I_D = 30 \text{ A}$	$R_{DS(on)}$	–	5.7 m $\Omega$	7 m $\Omega$

**Characteristics (dynamic)**
**Kennwerte (dynamisch)**

		$T_j = 25^\circ\text{C}$	Min.	Typ.	Max.
Forward Transconductance – Übertragungsteilheit	$V_{DS} = 10 \text{ V}$ $I_D = 60 \text{ A}$	$g_{FS}$	–	50 S	–
Input Capacitance – Eingangskapazität	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	$C_{iss}$	–	3400 pF	–
Output Capacitance – Ausgangskapazität	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	$C_{oss}$	–	310 pF	–
Reverse Transfer Capacitance – Rückwirkungskapazität	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	$C_{rss}$	–	221 pF	–
Turn-On Delay & Rise Time – Einschaltverzögerung und Anstiegszeit	$V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_G = 2.5 \Omega$ (Fig. 1)	$t_{d(on)}$ $t_r$	–	15 ns 11 ns	–
Turn-Off Delay & Fall Time – Ausschaltverzögerung und Abfallzeit	$V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 0 \text{ V}$ $R_G = 2.5 \Omega$ (Fig. 1)	$t_{d(off)}$ $t_f$	–	52 ns 13 ns	–
Total Gate Charge – Gesamte Gate-Ladung	$V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$	$Q_g$	–	94 nC	–
Gate-Source Charge – Gate-Source-Ladung	$V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$	$Q_{gs}$	–	16 nC	–
Gate-Drain Charge – Gate-Drain-Ladung	$V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$	$Q_{gd}$	–	24 nC	–
Intrinsic Gate resistance – Innerer Gatewiderstand	$f = 1 \text{ Mhz}$ D open	$R_{Gi}$	–	tbd $\Omega$	–

**Fig. 1**

Test circuit for switching times (R) and avalanche energy (L) ("rise" and "fall" refer to  $I_D$ )  
 Testaufbau für Schaltzeiten (R) und Avalanche-Energie (L) ("rise" und "fall" beziehen sich auf  $I_D$ )



**Characteristics (diode)**

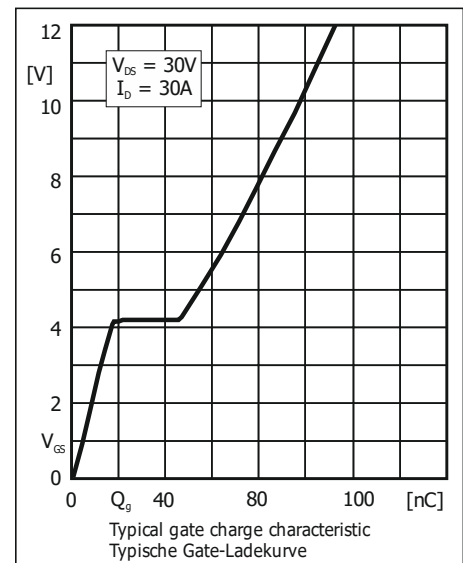
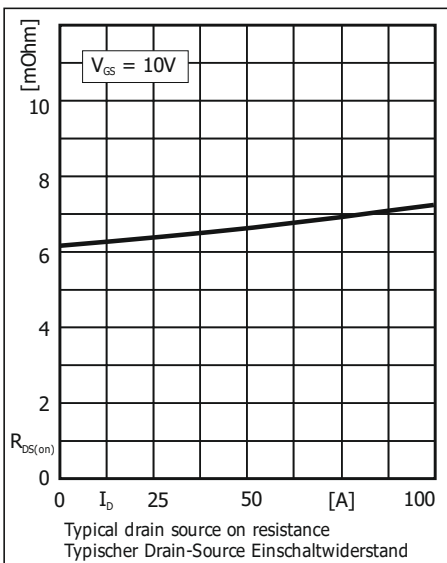
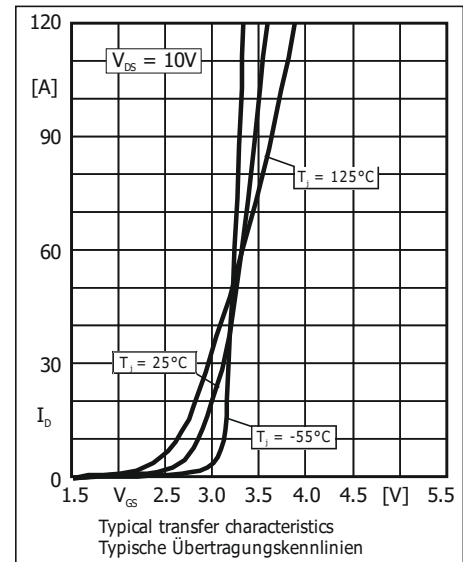
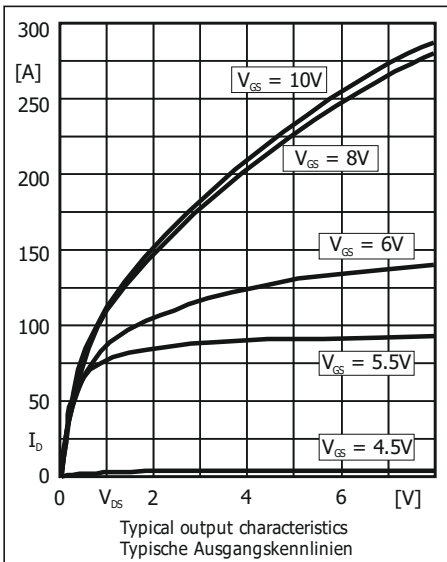
**Kennwerte (Diode)**

		$T_j = 25^\circ\text{C}$	Min.	Typ.	Max.
Forward voltage – Durchlass-Spannung $V_{GS} = 0\text{ V}$ $I_S = 30\text{ A}$		$V_{SD}$	–	–	1.2 V
Reverse recovery time – Sperrverzugszeit $I_S = 30\text{ A}$ , $di/dt = -100\text{ A}/\mu\text{s}$		$t_{rr}$	–	33 ns	–
Reverse recovery charge – Sperrverzugsladung $I_S = 30\text{ A}$ , $di/dt = -100\text{ A}/\mu\text{s}$		$Q_{rr}$	–	54 nC	–

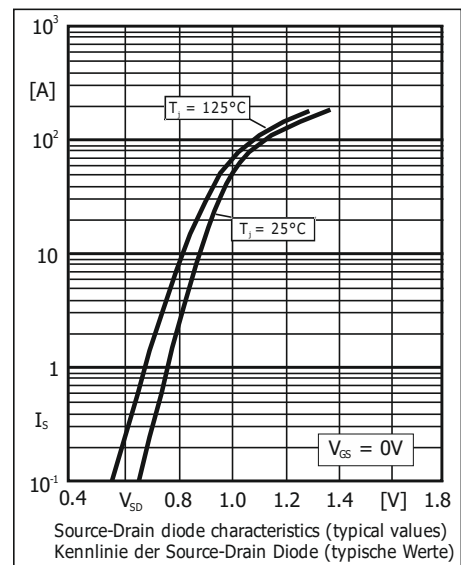
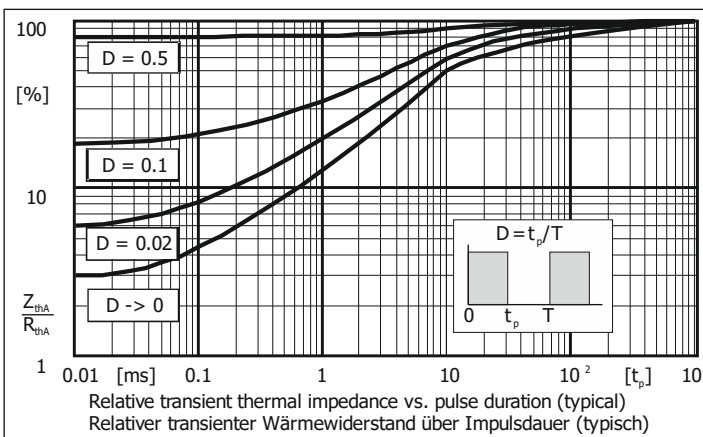
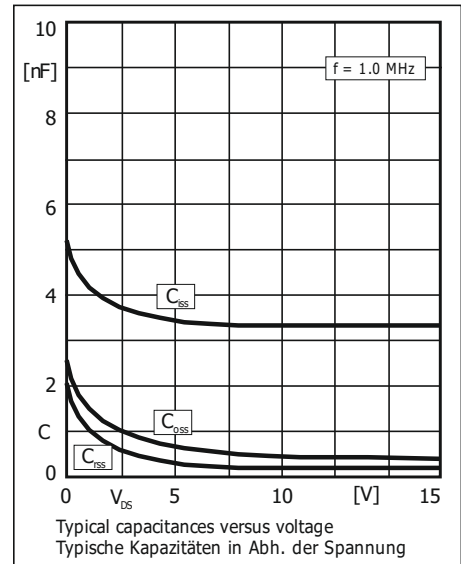
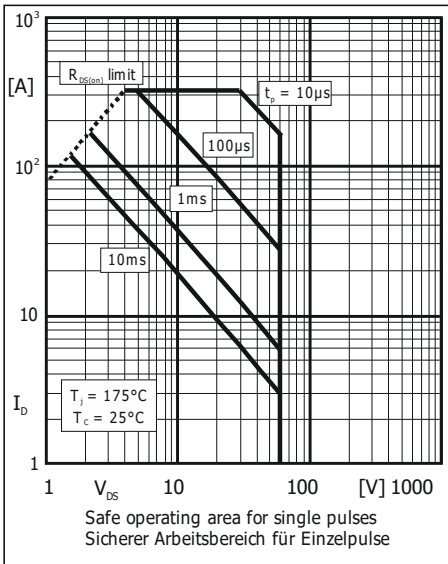
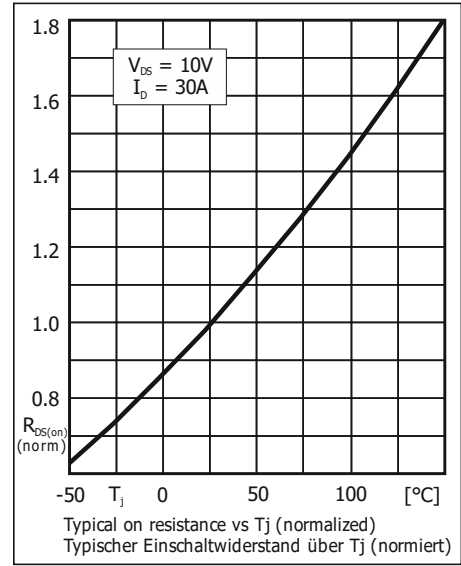
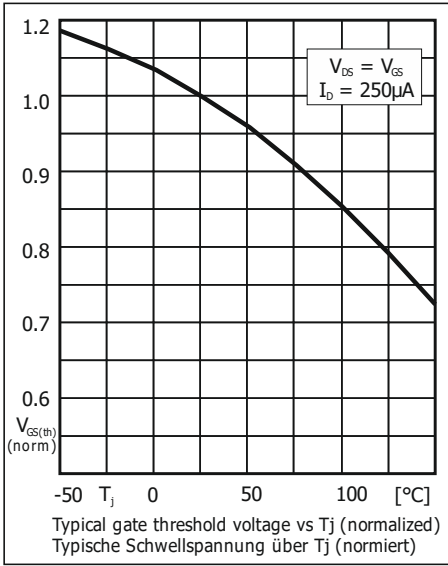
**Characteristics (thermal)**

**Kennwerte (thermisch)**

		Min.	Typ.	Max.	
Thermal resistance junction to case Wärmewiderstand Sperrschicht – Gehäuse		$R_{thc}$	–	0.9 K/W <sup>1)</sup>	–



1 Measured at heat flange – Gemessen an der Kühlfahne



**Disclaimer:** See data book page 2 or [website](#)  
**Haftungsausschluss:** Siehe Datenbuch Seite 2 oder [Internet](#)