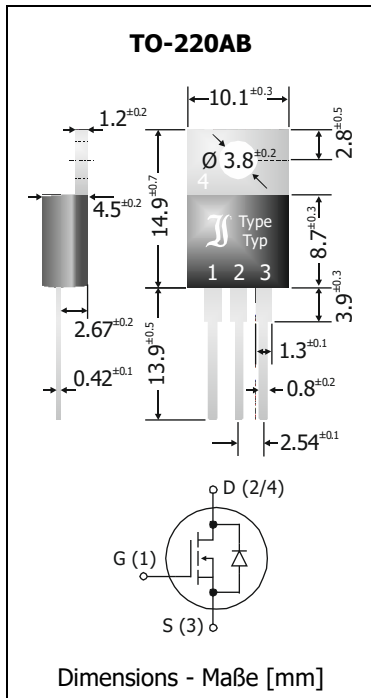


DIT150N03 N-Channel Power MOSFET N-Kanal Leistungs-MOSFET	I_{D25°C} = 150 A R_{DS(on)} ~ 2.3 mΩ T_{jmax} = 175°C	V_{DSS} = 30 V P_D = 130 W E_{AS} = 1700 mJ
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Version 2020-05-07



Typical Applications

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

Features

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

Mechanical Data ¹⁾

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 ¹⁾

Besonderheiten

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

Mechanische Daten ¹⁾

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

Maximum ratings ²⁾

Grenzwerte ²⁾

		DIT150N03	
Drain-Source voltage Drain-Source-Spannung	$V_{GS} = 0 \text{ V (short)}$	V_{DSS}	30 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}	130 W
Drain current continuous Drainstrom dauernd	$T_C = 25^\circ\text{C} \text{ }^3)$	I_D	150 A
Drain current continuous Drainstrom dauernd	$T_C = 100^\circ\text{C} \text{ }^3)$	I_D	105 A
Peak Drain current – Drain-Spitzenstrom	⁴⁾	I_{DM}	600 A
Source current continuous Sourcestrom dauernd	$T_C = 25^\circ\text{C} \text{ }^3)$	I_S	105 A
Peak Source current – Source-Spitzenstrom	$V_{GS} = 0 \text{ V}, t_p = 10 \text{ s}$	I_{SM}	150 A
Single pulse avalanche energy Einzelpuls Avalanche-Energie	(Fig. 1) $V_{DD} = 40 \text{ V}, V_G = 10 \text{ V}$ $L = 0.5 \text{ mH}, R_G = 25 \Omega$	E_{AS}	1700 mJ
Junction temperature – Sperrschichttemperatur		T_j	-55...+175°C
Storage temperature – Lagerungstemperatur		T_s	-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)	$V_{(BR)DSS}$		30 V	35 V	–
Drain-Source leakage current – Drain-Source Leckstrom $V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ (short)	I_{DSS}		–	–	1 μA
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 $V_{GS} = V_{DS}$ $I_D = 250 \mu\text{A}$	$V_{GS(th)}$		1.2 V	1.7 V	2.5 V
Drain-Source on-state resistance – Drain-Source Einschaltwiderstand $V_{GS} = 10 \text{ V}$ $I_D = 20 \text{ A}$ $V_{GS} = 4.5 \text{ V}$ $I_D = 10 \text{ A}$	$R_{DS(on)}$		–	2.3 m Ω 3.2 m Ω	3.0 m Ω 4.0 m Ω

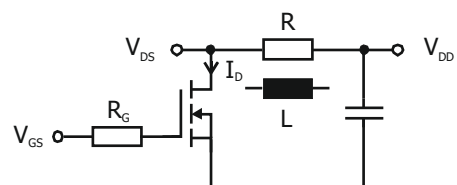
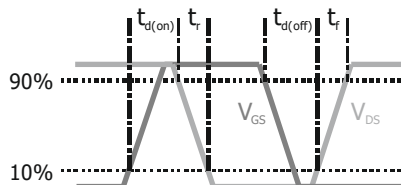
Characteristics (dynamic)
Kennwerte (dynamisch)

		$T_j = 25^\circ\text{C}$	Min.	Typ.	Max.
Forward Transconductance – Übertragungsteilheit $V_{DS} = 25 \text{ V}$ $I_D = 20 \text{ A}$	g_{FS}		32 S	–	–
Input Capacitance – Eingangskapazität $V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	C_{iss}		–	5000 pF	–
Output Capacitance – Ausgangskapazität $V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	C_{oss}		–	1135 pF	–
Reverse Transfer Capacitance – Rückwirkungskapazität $V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	C_{rss}		–	563 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		–	26 ns 24 ns	–
Turn-Off Delay Time & 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		–	91 ns 39 ns	–
Total Gate Charge – Gesamte Gate-Ladung $V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$	Q_g		–	38 nC	–
Gate-Source Charge – Gate-Source-Ladung $V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$	Q_{gs}		–	90 nC	–
Gate-Drain Charge – Gate-Drain-Ladung $V_{DD} = 30 \text{ V}$ $I_D = 30 \text{ A}$ $V_{GS} = 10 \text{ V}$	Q_{gd}		–	13 nC	–
Intrinsic Gate resistance – Innerer Gatewiderstand $f = 1 \text{ MHz}$ D open	R_{Gi}		–	tbd Ω	–

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)

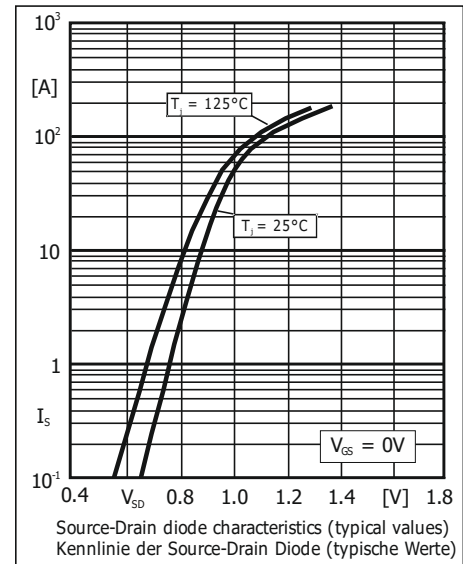
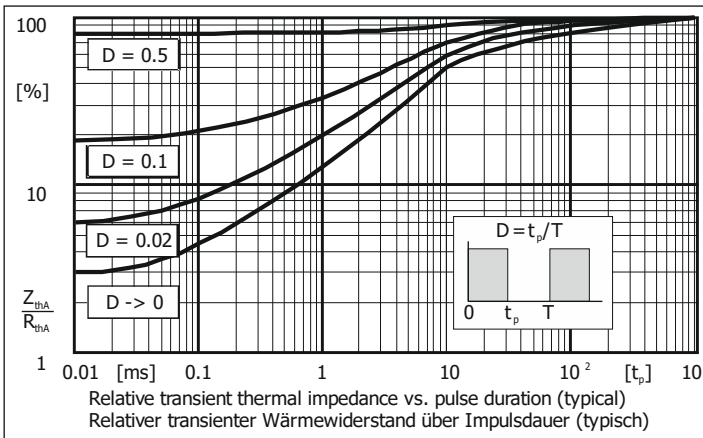
Kennwerte (Diode)

		$T_j = 25^\circ\text{C}$	Min.	Typ.	Max.
Forward voltage – Durchlass-Spannung $V_{GS} = 0\text{ V}$ $I_S = 150\text{ A}$		V_{SD}	–	–	1.2 V
Reverse recovery time – Sperrverzugszeit $I_S = 40\text{ A}$, $di/dt = -100\text{ A}/\mu\text{s}$		t_{rr}	–	–	42 ns
Reverse recovery charge – Sperrverzugsladung $I_S = 40\text{ A}$, $di/dt = -100\text{ A}/\mu\text{s}$		Q_{rr}	–	–	39 nC

Characteristics (thermal)

Kennwerte (thermisch)

		Min.	Typ.	Max.	
Thermal resistance junction to case Wärmewiderstand Sperrschicht – Gehäuse		R_{thc}	–	1.15 K/W ¹⁾	–



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

1 Measured at heat flange – Gemessen an der Kühlfahne

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