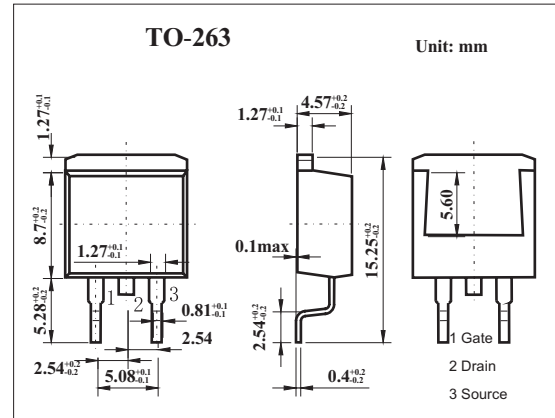


N-Channel SMPS Power MOSFET

KDB15N50(FDB15N50)

■ Features

- Low Gate Charge Q_g results in Simple Drive Requirement
- Improved Gate, Avalanche and High Reapplied dv/dt Ruggedness
- Reduced $r_{DS(ON)}$
- Reduced Miller Capacitance and Low Input Capacitance
- Improved Switching Speed with Low EMI



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to source voltage	V_{DS}	500	V
Gate to source voltage	V_{GS}	± 30	V
Drain current $T_c=25^\circ\text{C}$	I_D	15	A
Drain current-pulsed	I_{DP}	60	A
Power dissipation Derate above 25°C	P_D	300 2	W W/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Channel temperature	T_{ch}	175	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +175	$^\circ\text{C}$

KDB15N50(FDB15N50)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain to source breakdown voltage	V _{DSS}	I _D =250μA, V _{GS} =0V	500			V
Drain cut-off current	I _{DSS}	V _{DS} =500V, V _{GS} =0, T _C =25°C			25	μA
Gate leakage current	I _{GSS}	V _{GS} =±30V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	3.4	4.0	V
Drain to source on-state resistance	R _{DS(on)}	V _{GS} =10V, I _D =7.5A		0.33	0.38	Ω
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0, f=1MHZ		1850		pF
Output capacitance	C _{oss}			230		pF
Reverse transfer capacitance	C _{rss}			16		pF
Forward Transconductance	g _{fs}	V _{DD} = 10V, I _D = 7.5A	10			S
Total Gate Charge at 10V	Q _{g(TOT)}	V _{GS} = 10V,		33	41	nC
Gate to Source Gate Charge	Q _{gs}	V _{DS} = 400V,		7.2	10	nC
Gate to Drain "Miller" Charge	Q _{gd}	I _D = 15A		12	16	nC
Turn-on delay time	t _{on}	I _D =15A, R _g =6.2Ω, V _{DD} =250V, R _D =17Ω		9		ns
Rise time	t _r			5.4		ns
Turn-off delay time	t _{off}			26		ns
Fall time	t _f			5		ns
Reverse Recovery Time	t _{rr}	I _{SD} = 15A, di _{SD} /dt = 100A/μs		470	730	ns
Reverse Recovered Charge	Q _R	I _{SD} = 15A, di _{SD} /dt = 100A/μs		5	6.6	μC
Continuous Source Current	I _S	MOSFET symbol showing the integral reverse p-n junction diode.			15	A
Pulsed Source Current1	I _{SM}				60	A