BUK964R7-80E

N-Channel 80 V (D-S) MOSFET

PRODUCT SUMMARY						
V _{DS} (V)	R _{DS(on)} (Ω) MAX.	I _D (A)	Q _g (TYP.)			
80	0.0050 at V_{GS} = 10 V	215	94			
	0.0095 at V _{GS} = 7.5 V	205				

FEATURES

- TrenchFET[®] power MOSFET
- Maximum 175 °C junction temperature
- Very low Q_{gd} reduces power loss from passing through $V_{plateau}$
- + 100 % $\rm R_g$ and UIS tested

APPLICATIONS

- Power supply
 Secondary synchronous rectification
- DC/DC converter
- Power tools
- Motor drive switch
- DC/AC inverter
- Battery management



GC

ABSOLUTE MAXIMUM RATINGS ($T_{C} = 25 \ ^{\circ}C$, unless othe	rwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT		
Drain-Source Voltage	V _{DS}	80	V		
Gate-Source Voltage	V _{GS}	± 20	V		
Continuous Drain Current (T 150 °C)	T _C = 25 °C	1	215		
Continuous Drain Current ($T_J = 150 \ ^{\circ}C$)	T _C = 70 °C	I _D	120 ^d	A	
Pulsed Drain Current (t = 100 µs)	I _{DM}	600			
Avalanche Current		I _{AS}	70	1	
Single Avalanche Energy ^a	L = 0.1 mH	E _{AS}	245	mJ	
Meximum Device Dissinction a	T _C = 25 °C	P	375 ^b	w	
Maximum Power Dissipation ^a	T _C = 125 °C		125 ^b	~ ~ ~ ~	
Operating Junction and Storage Temperature R	T _J , T _{stg}	-55 to +175	°C		

THERMAL RESISTANCE RATINGS						
PARAMETER	SYMBOL	LIMIT	UNIT			
Junction-to-Ambient (PCB Mount) ^c	R _{thJA}	40	°C/W			
Junction-to-Case (Drain)	R _{thJC}	0.4	0/11			

Notes

- a. Duty cycle \leq 1 %.
- b. See SOA curve for voltage derating.
- c. When mounted on 1" square PCB (FR4 material).
- d. Package limited.





RoHS COMPLIANT

HALOGEN

FREE

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PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Static							
Drain-Source Breakdown Voltage	V _{DS}	V_{GS} = 0 V, I_D = 250 μ A	80	-	-	V	
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_D = 250 \ \mu A$	2	-	4	V	
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$	-	-	± 250	nA	
		$V_{DS} = 80 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$	-	-	1		
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = 80 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 125 ^{\circ}\text{C}$	-	-	150	μA	
		V_{DS} = 80 V, V_{GS} = 0 V, T_J = 175 °C	-	-	5	mA	
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 10$ V, $V_{GS} = 10$ V	120	-	-	А	
Ducia Course On Ototo Decistores à	_	$V_{GS} = 10 \text{ V}, \text{ I}_{D} = 30 \text{ A}$	-	0.0050	-	Ω	
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = 7.5 \text{ V}, \text{ I}_{D} = 20 \text{ A}$	-	0.0095	-		
Forward Transconductance ^a	9 _{fs}	$V_{DS} = 15 \text{ V}, I_{D} = 30 \text{ A}$	-	82	-	S	
Dynamic ^b							
Input Capacitance	C _{iss}		-	7910	-	pF	
Output Capacitance	C _{oss}	V_{GS} = 0 V, V_{DS} = 40 V, f = 1 MHz	-	3250	-		
Reverse Transfer Capacitance	C _{rss}		-	348	-		
Total Gate Charge ^c	Qg		-	94	141	nC	
Gate-Source Charge ^c	Q _{gs}	V_{DS} = 40 V, V_{GS} = 10 V, I_{D} = 20 A	-	31	-		
Gate-Drain Charge ^c	Q _{gd}		-	10	-		
Gate Resistance	Rg	f = 1 MHz	0.28	1.4	2.8	Ω	
Turn-On Delay Time ^c	t _{d(on)}		-	24	40	- ns	
Rise Time ^c	t _r	$V_{DD} = 40 \text{ V}, \text{ R}_{L} = 4 \Omega$	-	24	40		
Turn-Off Delay Time ^c	t _{d(off)}	$I_D \cong 10$ Å, $V_{GEN} = 10$ V, $R_g = 1$ Ω	-	34	60		
Fall Time ^c	t _f		-	14	28		
Drain-Source Body Diode Ratings an	nd Characteris	stics ^b (T _C = 25 °C)					
Pulsed Current (t = 100 µs)	I _{SM}		-	-	250	А	
Forward Voltage ^a	V _{SD}	$I_F = 10 \text{ A}, V_{GS} = 0 \text{ V}$	-	0.8	1.5	V	
Reverse Recovery Time	t _{rr}		-	126	190	ns	
Peak Reverse Recovery Charge	I _{RM(REC)}	I _F = 34 A, di/dt = 100 A/μs	-	5	10	А	
Reverse Recovery Charge	Q _{rr}		-	0.315	0.475	μC	

Notes

a. Pulse test; pulse width \leq 300 µs, duty cycle \leq 2 %. b. Guaranteed by design, not subject to production testing.

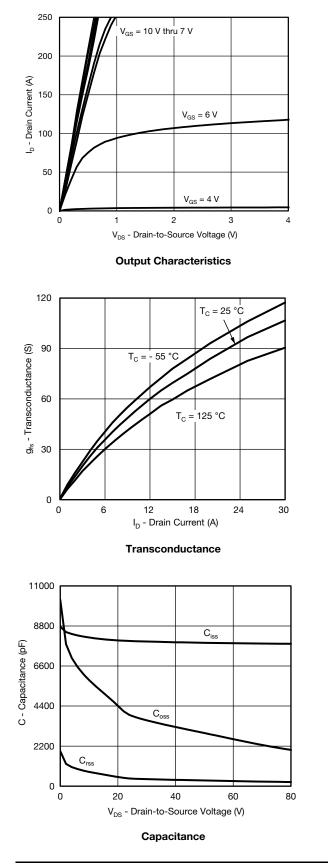
c. Independent of operating temperature.

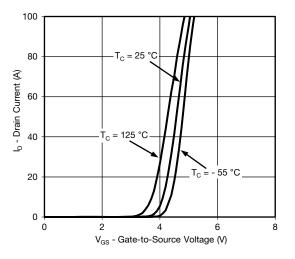
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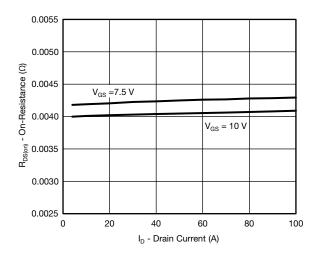


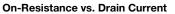
TYPICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$, unless otherwise noted)

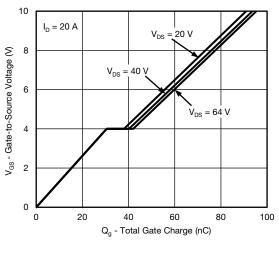




Transfer Characteristics



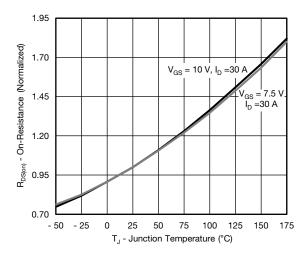




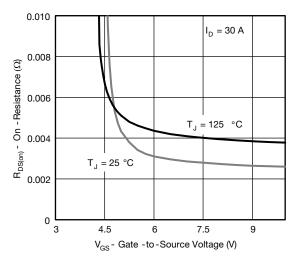




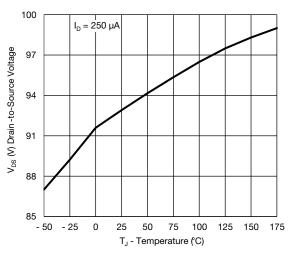
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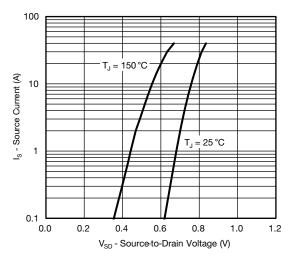
On-Resistance vs. Junction Temperature



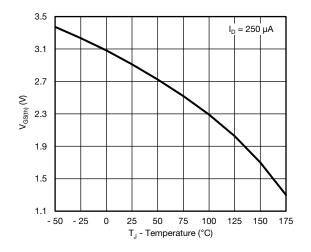
On-Resistance vs. Gate-to-Source Voltage



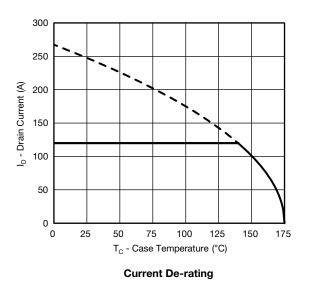
Drain Source Breakdown vs. Junction Temperature



Source Drain Diode Forward Voltage

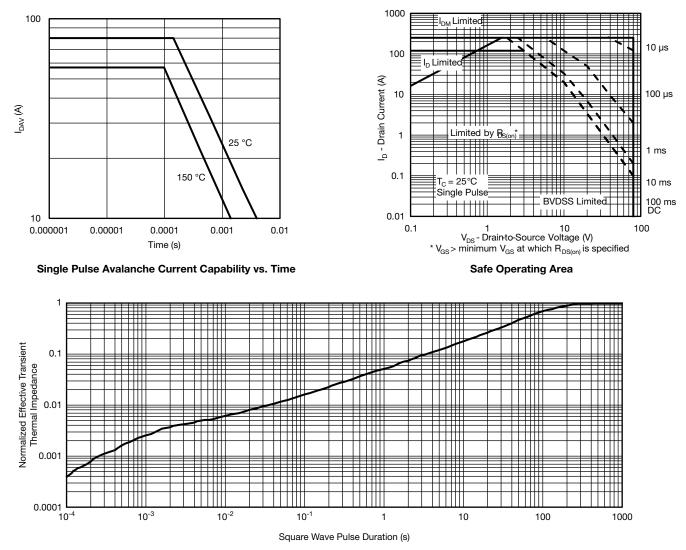








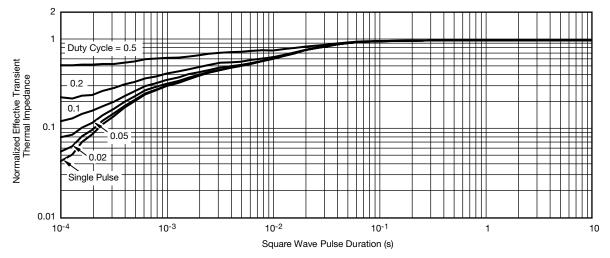
THERMAL RATINGS ($T_A = 25 \text{ °C}$, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient



THERMAL RATINGS ($T_A = 25 \text{ °C}$, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Case

Note

• The characteristics shown in the two graphs

- Normalized Transient Thermal Impedance Junction to Ambient (25 °C)

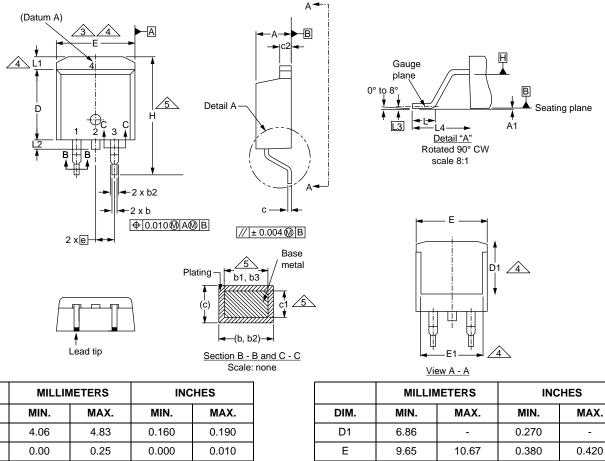
- Normalized Transient Thermal Impedance Junction to Case (25 °C)

are given for general guidelines only to enable the user to get a "ball park" indication of part capabilities. The data are extracted from single pulse transient thermal impedance characteristics which are developed from empirical measurements. The latter is valid for the part mounted on printed circuit board - FR4, size 1" x 1" x 0.062", double sided with 2 oz. copper, 100 % on both sides. The part capabilities can widely vary depending on actual application parameters and operating conditions.

BUK964R7-80E



TO-263AB



	MILLIMETERS		MILLIMETERS INCHES		
DIM.	MIN.	MAX.	MIN.	MAX.	
А	4.06	4.83	0.160	0.190	
A1	0.00	0.25	0.000	0.010	
b	0.51	0.99	0.020	0.039	
b1	0.51	0.89	0.020	0.035	
b2	1.14	1.78	0.045	0.070	
b3	1.14	1.73	0.045	0.068	
С	0.38	0.74	0.015	0.029	
c1	0.38	0.58	0.015	0.023	
c2	1.14	1.65	0.045	0.065	
D	8.38	9.65	0.330	0.380	
ECN: S-82 DWG: 597	110-Rev. A, [•] 0	15-Sep-08			

DIM.	MIN.	MAX.	MIN.	MAX.	
D1	6.86	-	0.270	-	
E	9.65	10.67	0.380	0.420	
E1	6.22	-	0.245	-	
е	2.54	BSC	0.100 BSC		
Н	14.61	15.88	0.575	0.625	
L	1.78	2.79	0.070	0.110	
L1	-	1.65	-	0.066	
L2	-	1.78	-	0.070	
L3	0.25	BSC	0.010 BSC		
L4	4.78	5.28	0.188	0.208	

Notes

1. Dimensioning and tolerancing per ASME Y14.5M-1994.

- 2. Dimensions are shown in millimeters (inches).
- 3. Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outmost extremes of the plastic body at datum A.
- 4. Thermal PAD contour optional within dimension E, L1, D1 and E1.
- 5. Dimension b1 and c1 apply to base metal only.
- 6. Datum A and B to be determined at datum plane H.
- 7. Outline conforms to JEDEC outline to TO-263AB.



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