

MOSPOWER Cross Reference List (Cont'd)

MOSPOWER Cross Reference List

INTERMIL (Cont'd)

Industry Part No.	BVDSS (Volts)	rDS(on) (Ohms)	Package	Siliconix Equivalent	BVDSS (Volts)	rDS(on) (Ohms)
IVN6100TNU	500	15.0	TO-39	—	—	—
IVN6200CND	40	0.35	TO-220	VN0401D	40	0.15
IVN6200CNE	60	0.25	TO-220	IRF533	60	0.25
IVN6200CNF	80	0.25	TO-220	VN0801D	80	0.25
IVN6200CNH	100	0.25	TO-220	VN1001D	100	0.25
IVN6200CNM	200	0.5	TO-220	IRF630	200	0.4
IVN6200CNP	250	0.5	TO-220	—	—	—
IVN6200CNR	395	2.5	TO-220	VN4001D	400	1.5
IVN6200CNS	400	1.5	TO-220	VN4001D	400	1.5
IVN6200CNT	450	1.5	TO-220	VN4501D	450	1.5
IVN6200CNU	500	2.0	TO-220	VN5001D	500	1.5
IVN6200KND	40	0.25	TO-3	VN0401A	40	0.15
IVN6200KNE	60	0.25	TO-3	IRF133	60	0.25
IVN6200KNF	80	0.25	TO-3	VN0801A	80	0.25
IVN6200KNH	100	0.25	TO-3	VN1001A	100	0.25
IVN6200KNM	200	0.5	TO-3	IRF230	200	0.4
IVN6200KNP	250	0.5	TO-3	—	—	—
IVN6200KNS	400	1.5	TO-3	VN4001A	400	1.5
IVN6200KNT	450	1.5	TO-3	VN4501A	450	1.5
IVN6200KNU	500	2.0	TO-3	VN5000A	500	1.5
IVN6300ANE	60	7.5	TO-237	VN2222LM	60	7.5
IVN6300ANF	80	7.5	TO-237	—	—	—
IVN6300ANH	100	7.5	TO-237	—	—	—
IVN6300ANM	200	25.0	TO-237	VN2410M	240	10.0
IVN6300ANP	250	25.0	TO-237	VN2410M	240	10.0
IVN6300ANS	400	75.0	TO-237	—	—	—
IVN6300ANT	450	75.0	TO-237	—	—	—
IVN6300ANU	500	75.0	TO-237	—	—	—
IVN6300SNE	60	7.5	TO-52	VN10LE	60	5.0
IVN6300SNF	80	7.5	TO-52	—	—	—
IVN6300SNH	100	7.5	TO-52	—	—	—
IVN6300SNM	200	25.0	TO-52	—	—	—
IVN6300SNP	250	25.0	TO-52	—	—	—
IVN6300SNS	400	75.0	TO-52	—	—	—
IVN6300SNT	450	75.0	TO-52	—	—	—
IVN6300SNU	500	75.0	TO-52	—	—	—

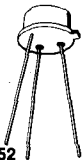
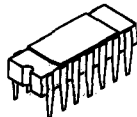
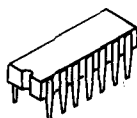
MOTOROLA

MTM1N95	950	10.0	TO-3	—	—	—
MTM1N100	1000	10.0	TO-3	—	—	—
MTM2N45	450	4.0	TO-3	IRF423	450	4.0
MTM2N50	500	4.0	TO-3	IRF422	500	4.0
MTM2N85	850	8.0	TO-3	—	—	—
MTM2N90	900	8.0	TO-3	—	—	—
MTM3N35	350	3.3	TO-3	IRF323	350	2.5
MTM3N40	400	3.3	TO-3	IRF322	400	2.5
MTM3N55	550	2.5	TO-3	—	—	—
MTM3N60	600	2.5	TO-3	—	—	—
MTM4N45	450	2.0	TO-3	VN4502A	450	2.0
MTM4N50	500	2.0	TO-3	VN5002A	500	2.0
MTM5N35	350	1.5	TO-3	VN3501A	350	1.5
MTM5N40	400	1.5	TO-3	VN4001A	400	1.5
MTM6N55	550	1.5	TO-3	—	—	—
MTM6N60	600	1.5	TO-3	—	—	—
MTM7N45	450	1.2	TO-3	IRF443	450	1.1
MTM7N50	500	1.2	TO-3	IRF442	500	1.1
MTM8N12	120	0.5	TO-3	—	—	—
MTM8N15	150	0.5	TO-3	—	—	—
MTM8N18	180	0.4	TO-3	—	—	—
MTM8N20	200	0.4	TO-3	—	—	—
MTM8N35	350	0.8	TO-3	IRF343	350	0.8
MTM8N40	400	0.8	TO-3	IRF342	400	0.8
MTM10N08	80	0.33	TO-3	IRF120	100	0.3
MTM10N10	100	0.33	TO-3	IRF120	100	0.3
MTM10N12	120	0.3	TO-3	—	—	—
MTM10N15	150	0.3	TO-3	—	—	—
MTM12N05	50	0.2	TO-3	VN0601A	60	0.15
MTM12N06	60	0.2	TO-3	VN0601A	60	0.15
MTM12N08	80	0.25	TO-3	VN0801A	80	0.25
MTM12N10	100	0.25	TO-3	VN1001A	100	0.25

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MOSPOWER Selector Guide (Continued)

N-Channel MOSPOWER (Continued)

Device	Breakdown Voltage (Volts)	$r_{DS(on)}$ (Ohms)	I_D Continuous (Amps)	Power Dissipation (Watts)	Part Number
 TO-52	60 60	5.0 5.0	0.2 0.2	0.315 0.315	VN10KE VN10LE
 TO-237	240 240 170 170 120 120 80 60 60 60 60 30	6.0 10.0 6.0 10.0 6.0 10.0 4.0 3.0 5.0 5.0 7.5 7.5 1.2	0.3 0.25 0.3 0.25 0.3 0.25 0.35 0.4 0.3 0.3 0.25 0.25 0.7	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	VN2406M VN2410M VN1706M VN1710M VN1206M VN1210M VN0808M VN0606M VN10KM VN10LM VN2222KM VN2222LM VN0300M
 TO-92	240 240 170 170 120 120 60 60	6.0 10.0 6.0 10.0 6.0 10.0 5.0 7.5	0.21 0.16 0.21 0.16 0.21 0.16 0.2 0.15	0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	VN2406L VN2410L VN1706L VN1710L VN1206L VN1210L VN0610L VN2222L
 14-Pin Dual-In-Line (Side Braid)	90 60 60 30	4.5 3.5 5.5 1.0	0.40 0.46 0.225 0.85	1.3 1.3 0.5 1.3	VQ1006P VQ1004P VQ1000P VQ1001P
 14-Pin Dual-In-Line (Plastic)	90 60 60 30	4.5 3.5 5.5 1.0	0.40 0.46 0.225 0.85	1.3 1.3 0.5 1.3	VQ1006J VQ1004J VQ1000J VQ1001J

VN10KE ■ VN10LE



60V N-Channel Enhancement Mode MOSPOWER

These power FETs are designed especially for low power high frequency inverters, interface to CMOS and TTL logic, and line drivers.

FEATURES

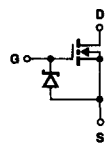
- High Input Impedance
- Extremely Fast Switching
- Rugged—Dissipation Limited SOA
- Internal Drain-Source Diode

BENEFITS

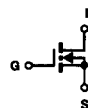
- Reduced Component Count
- Simpler Designs
 - Directly Interfaces CMOS & TTL
- Improved Circuit Performance
- Increased Reliability

Product Summary

Part Number	BV _{DSS} (Volts)	R _{DS(ON)} (Ohms)	Package
VN10KE	60	5	TO-52
VN10LE	60	5	TO-52



VN10KE



VN10LE

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Drain-Source Voltage 60V

Drain-Gate Voltage 60V

Gate Current (Peak) 100 mA

Gate-Source Voltage

VN10KE +15V, -0.3V

VN10LE ± 40V

Drain Current

Continuous¹ ±0.2A

Pulsed² ±1A

Maximum Dissipation at 25°C Case 0.315W

Linear Derating Factor 2.5 mW/°C

Operating and Storage

Temperature -55°C to +150°C

Lead Temperature

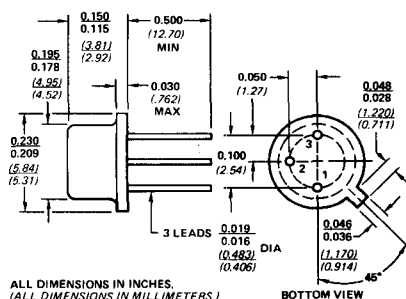
(1/16" from Case for 10 secs) .. +300°C

Notes:

1. Limited by package dissipation.

2. Pulse test—80μs to 300μs, 1% duty cycle.

PACKAGE DIMENSIONS



ALL DIMENSIONS IN INCHES.
(ALL DIMENSIONS IN MILLIMETERS)

TO-52

PIN 1 — Source
PIN 2 — Gate
PIN 3 & CASE — Drain



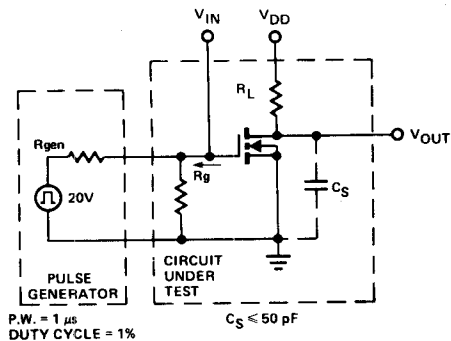
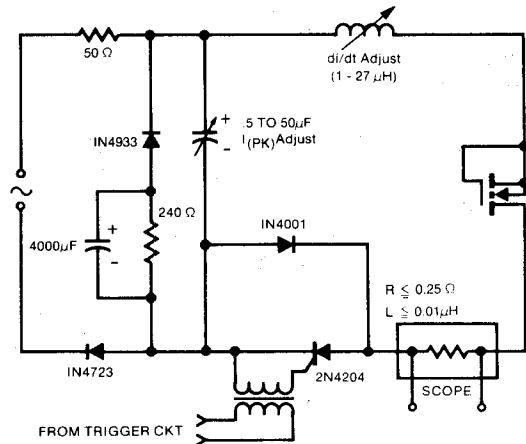
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Part Number	Min	Max	Unit	Test Conditions
Static						
BV _{DSS}	Drain-Source Breakdown	All	60		V	I _D = 100 μA, V _{GS} = 0
V _{GS(th)}	Gate Threshold Voltage	All	0.8	2.5		V _{DS} = V _{GS} , I _D = 1 mA
I _{GSS}	Gate-Body Leakage	VN10KE		100	nA	V _{GS} = 15V, V _{DS} = 0
		VN10LE		100		V _{GS} = 30V, V _{DS} = 0
I _{DSS}	Zero Gate Voltage Drain Current	All		10	μA	V _{DS} = 50V, V _{GS} = 0
I _{D(on)}	ON-State Drain Current	All	0.75		A	V _{DS} = 15V, V _{GS} = 10V (Note 1)
V _{DS(on)}	Drain-Source Saturation Voltage	All		1.5	V	V _{GS} = 5V, I _D = 0.2A (Note 1)
				2.5		V _{GS} = 10V, I _D = 0.5A (Note 1)
r _{DS(on)}	Static-Drain-Source ON-State Resistance	All		7.5	Ω	V _{GS} = 5V, I _D = 0.2A (Note 1)
				5.0		V _{GS} = 10V, I _D = 0.5A (Note 1)
Dynamic						
g _{fs}	Forward Transconductance	All	200		mS	V _{DS} = 15V, I _D = 0.5A (Note 1)
C _{iss}	Input Capacitance	All		60	pF	V _{DS} = 25V, f = 1 MHz
C _{rss}	Reverse Transfer Capacitance			5		
C _{oss}	Common Source Output Capacitance			25		
t _{ON}	Turn-ON Time	All		10	ns	V _{DD} = 15V, R _L = 23Ω, R _g = 25Ω, I _D = 0.6A
t _{OFF}	Turn-OFF Time	All		10		
Drain-Source Diode Characteristics						
			Typ			
V _{SD}	Forward ON Voltage	All	-0.85		V	I _S = -0.5A, V _{GS} = 0 (Note 1)
t _{rr}	Reverse Recovery Time	All	160		ns	V _{GS} = 0, I _F = I _R = 0.5A

Note:

1. Pulse test: 80–300 μs , 1% duty cycle.

Refer to VNML ■ VNMK Design Curves (See Section 4)

TEST CIRCUITS**FIGURE 1 Switching Test Circuit****FIGURE 2 JEDEC Reverse Recovery Circuit**

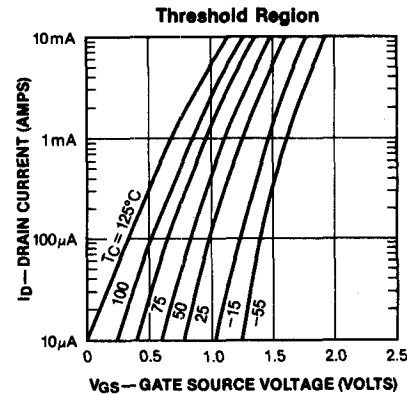
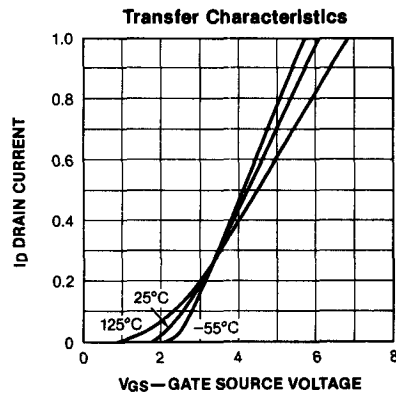
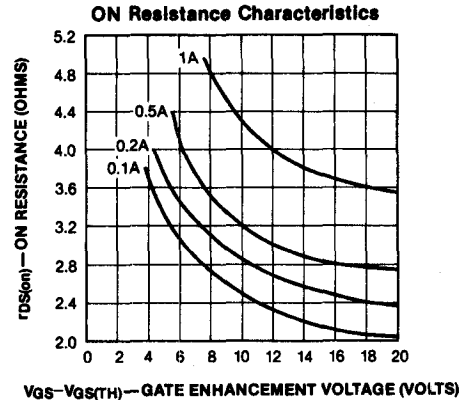
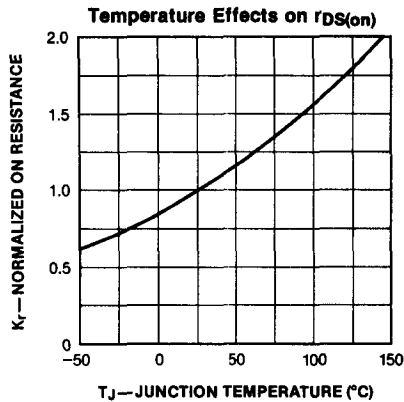
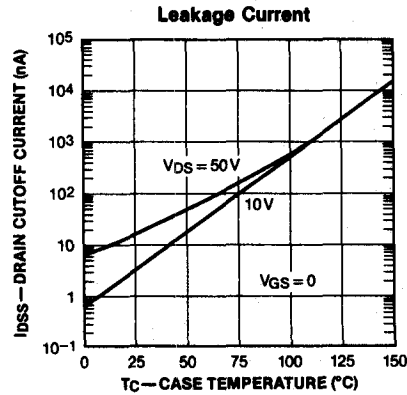
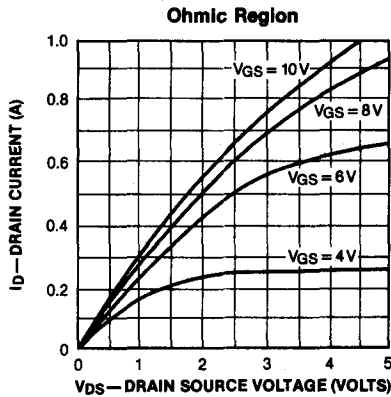
TYPICAL STATIC CHARACTERISTICS

(Pulse width $80\mu\text{s}$ — $300\mu\text{s}$, Duty cycle 1%, $T_C=25^\circ\text{C}$)

Part Numbers: VN10KM, VN10LM, VN10KE, VN10LE, VN0610L, VN2222L, VN2222LM, VN2222KM, VQ1000P, VQ1000J

VNMK ■ VNML

VNMK ■ VNML



01/83

TYPICAL CHARACTERISTICS (Cont'd)

VNML ■ VNML

Part Numbers: VN10KM, VN10LM, VN10KE, VN10LE, VN0610L, VN2222L, VN2222LM, VN2222KM, VQ1000P, VQ1000J

