



Selection by Package

The product listed in Tables 1 through 22 have been compiled on an IBM or compatible personal computer disk for quick selection of product. This versatile disk may be obtained

by contacting a Motorola sale office in your area or by contacting a Motorola Literature Distribution Center listed on the back cover. Order the disk by requesting DK101 D.

Tables 1 through 22 are shown by package type. Within the tables the devices are arranged by breakdown voltage and on-resistance as the primary selection criteria. Device types shaded in Tables 1 through 8 are preferred devices recommended for new designs.

TMOS Power MOSFETs

Plastic Packages — TO-220AB

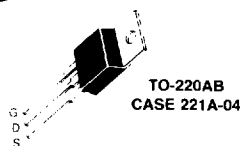


Table 1 — P-Channel

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	I_D (cont) Amps	P_D^* (Watts) Max	Page
	500	6	1	MTP2P50	2	75	3-407
	450			MTP2P45			3-407
	250	4	1.5	MTP3P25	3		3-427
		3	2.5	MTP5P25	5		3-447
		2	4	MTP8P25	8		3-462
NEW	200	0.5	6	IRF9640	11	125	3-147
NEW		0.8	3.5	IRF9630	6.5	75	3-145
		1	2.5	MTP5P20	5		3-442
	180			MTP5P18			3-442
	100	0.4	4	MTP8P10	8		3-457
		0.3	6	MTP12P10	12		3-493
	80	0.4	4	MTP8P08	8		3-457
				MTP12P08	12		3-493
NEW	60	0.6	3.5	MTP7P06	7		3-651
		0.3	6	MTP2955	12		3-806
				MTP12P06			3-493
		0.2	10	MTP20P06	20	100	3-740
	50	0.6	3.5	MTP7P05	7	75	3-651
		0.3	6	MTP12P05	12		3-493

* $T_J = 25^\circ\text{C}$

Bold Type indicates new product.

Shaded devices are preferred devices and are recommended for new designs

Plastic Packages — TO-220AB (continued)

Table 2 — N-Channel

	V_{GS} (V)	I_{DS} (mA)	Device	I_D (mA)	P_D (Watts)	Page		
NEW	1000	10	0.5	MTP1N100	1	75	3-392	
		4	1.5	MTP3N100	3		3-606	
	950	10	0.5	MTP1N95	1		3-392	
		4	1.5	MTP3N95	3		3-606	
	900	8	1	MTP2N90	2		3-402	
		4	2	MTP4N90	4		3-606	
	850	8	1	MTP2N85	2		3-402	
		4	2	MTP4N85	4		3-606	
	800	7	1.5	MTP3N80	3		3-417	
		3	1.7	BUZ80A			3-79	
	750	7	1.5	MTP3N75			3-417	
	600	12	0.5	MTP1N60	1		3-566	
		6	1	MTP2N60	2		3-586	
	NEW		2.5	1.5	MTP3N60	3		3-412
			2	2.5	BUZ90	4		3-85
		1.2	3	MTP6N60	6	125	3-641	
550		12	0.5	MTP1N55	1	75	3-566	
		6	1	MTP2N55	2		3-586	
		2.5	1.5	MTP3N55	3		3-412	
		1.2	3	MTP6N55	6	125	3-641	
500		8	0.5	MTP1N50	1	50	3-561	
		4		MTP2N50	2	75	3-397	
		3	1.5	IRF820	2.5	40	3-139	
				MTP3N50	3	75	3-601	
		2		IRF832	4		3-141	
		1.5		IRF830	4.5		3-141	
				MTP4N50	4		3-432	
		1.1	4	IRF842	7	125	3-143	
	0.85		IRF840	8		3-143		
	0.8		MTP6N50			3-672		
	450	8	0.5	MTP1N45	1	50	3-561	
		4	1	MTP2N45	2	75	3-397	
				IRF823		40	3-139	
		3		IRF821	2.5		3-139	
			1.5	MTP3N45	3	75	3-601	
		2	2.5	IRF833	4		3-141	
		1.5	2	MTP4N45			3-432	
			2.5	IRF831	4.5		3-141	

* @ 25°C

Bold Type Indicates new product.

Shaded devices are preferred devices and are recommended for new designs.

Table 2 — N-Channel — continued

Drain-Source Voltage (V)	Gate-Source Voltage (V)	Continuous Drain Current (A)	Device	h_{FE} (min)	PS (mW)	Page
450	1.1	4	IRF843	7	125	3-143
	0.85		IRF841	8		3-143
	0.8		MTP8N45			3-672
400	5	1	MTP2N40	2	50	3-581
	3.3	1.5	MTP3N40	3	75	3-596
	2.5		IRF722	2.5	40	3-133
	1.8		IRF720	3		3-133
	1.5	3	IRF732	4.5	75	3-135
	1		IRF730			3-135
			MTP6N40			3-437
	0.55	2.5	IRF740	10	125	3-137
			MTP10N40			3-704
350	5	1	MTP2N35	2	50	3-581
	1.5	3	IRF733	4.5	75	3-135
	1		IRF731	5.5		3-135
		2.5	MTP5N35	5		3-437
	0.55	5	IRF741	10	125	3-137
			MTP10N35			3-704
250	2	1	MTP2N25	2	50	3-576
	0.45	5	MTP10N25	10	100	3-478
200	2.4	1.25	IRF612	2	20	3-123
	1.8	1	MTP2N20		50	3-571
	1.5	1.25	IRF610	2.5	20	3-123
	1		MTP5N20	5	75	3-631
	0.8		IRF620		40	3-125
	0.7	3.5	MTP7N20	7	75	3-646
	0.6	5	IRF632	8		3-127
	0.4		IRF630	9		3-127
			4	MTP8N20		8
			3.5	BUZ73	7	40
	0.35	6	MTP12N20	12	100	3-714
	0.22	10	IRF642	16	125	3-129
	0.18		IRF640	18		3-129
150	0.8	2.5	IRF621	4	40	3-125
	0.4	5	IRF631	9	75	3-127
	0.3		MTP10N15	10		3-699
	0.25	7.5	MTP15N15	15	100	3-729
	0.22	10	IRF643	16	125	3-129

* at 25°C

Shaded devices are preferred devices and are recommended for new designs

Plastic Packages — TO-220AB (continued)

Table 2 — N-Channel — continued

V_{GS} (V) Min	$r_{DS(on)}$ (Ohms) Max	I_D (Amps)	Device	I_D (cont) (Amps)	P_D (Watts) Max	Page
150	0.18	10	IRF641	18	125	3-129
120	0.3	5	MTP10N12L	10	75	3-473
	0.9	2.5	MTP5N12	5	50	3-626
	1.2	1.5	MTP3N12	3		..
100	0.8	3	MTP6N10	6		3-636
		2	IRF512	3.5	20	3-115
	0.6		IRF510	4		3-115
	0.5	4	MTP8N10	8	75	3-656
			MTP8N10E			3-661
	0.4		IRF522	7	40	3-117
	0.33	5	MTP10N10	10	75	3-682
	0.3	4	IRF520	8	40	3-117
	0.25	5	MTP10N10E	10	75	3-687
		8	IRF532	12		3-119
	0.18		IRF530	14		3-119
		6	MTP12N10	12		3-488
	0.15	10	MTP20N10	20	100	3-519
			MTP20N10E			3-734
	0.11	15	IRF542	24	125	3-121
	0.085		IRF540	27		3-121
		12.5	MTP25N10	25		3-757
	0.075		MTP25N10E			3-762
80	0.8	2	MTP4N08	4	50	3-616
	0.5	4	MTP8N08	8	75	3-656
	0.33	5	MTP10N08	10		3-682
	0.18	6	MTP12N08	12		3-488
	0.15	10	MTP20N08	20	100	3-519
60	0.8	2	IRF513	3.5	20	3-115
	0.6		IRF511	4		3-115
		2.5	MTP5N06	5	50	3-621
	0.4	3.5	MTP7N06	7		..
		4	IRF523		40	3-117
	0.3		IRF521	8		3-117
	0.28	5	MTP10N06	10	75	3-677
	0.25	8	IRF533	12		3-119
	0.2	5	MTP10N06E	10		3-467
		6	MTP12N06			3-483
	0.18	8	IRF531	14		3-119

* @ 25°C

**Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs

Table 2 — N-Channel — continued

Power Dissipation (W)	Drain-Source Voltage (V)	Gate-Source Voltage (V)	Device	Power Dissipation (W)	Drain-Source Voltage (V)	Device
60	0.16	7.5	MTP15N06	15	75	3-719
	0.15		MTP15N06E			3-503
	0.085	15	IRF541	27	125	3-121
	0.08	12.5	MTP25N06	25	100	3-524
			MTP25N06E			3-751
	0.055	17.5	MTP35N06E	35	125	3-781
50	0.6	2.5	MTP5N05	5	50	3-621
	0.28	5	MTP10N05	10	75	3-677
	0.16	7.5	MTP15N05	15		3-719
	0.12	6	BUZ71A	12	40	3-70
			MTP12N05E			**
			IRFZ22			3-165
	0.1	7.5	BUZ71	12		3-70
			MTP15N05E	15		**
	0.08	12.5	IRFZ20	25	100	3-165
			MTP25N05			3-524
	0.06	15	IRFZ32	30	75	3-167
			BUZ11A			3-67
			MTP30N05E			3-768
			BUZ11			3-67
			IRFZ42	46		3-169
			IRFZ40			3-169

* @ 25°C

**Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs.

Table 3 — N- and P-Channel — Isolated TO-220

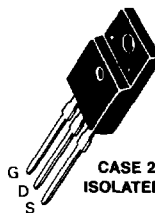
NEW	60	0.3	6	MTA2955***	7	33	**
NEW		0.15		MTA3055E	10		**
NEW		0.1	7.5	MTA15N06E	15	40	**
NEW		0.028	25	MTA30N06E	30	50	**

* @ 25°C

**Contact Motorola sales office for data sheet

***Indicates P-Channel

Shaded devices are preferred devices and are recommended for new designs

CASE 221D-01
ISOLATED TO-220



TMOS Power MOSFETs

Plastic Packages — TO-218AC

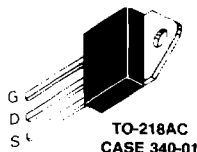


Table 4 — P-Channel

V_{BRDSS} (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	I_D (Amps)	Device	I_D (cont) Amps	P_D^* (Watts) Max	Page
200	0.7	4	MTH8P20	8	125	3-314
180			MTH8P18			3-314
100	0.15	10	MTH20P10	20		3-339
80			MTH20P08			3-339
60	0.14	12.5	MTH25P06	25		3-349
50			MTH25P05			3-349

* at 25°C

Shaded devices are preferred devices and are recommended for new designs.

Table 5 — N-Channel

	V_{BRDSS} (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	I_D (Amps)	Device	I_D (cont) Amps	P_D^* (Watts) Max	Page
NEW	1000	2	3	MTH5N100	6	150	3-287
		3	2.5	MTH5N100	5		3-272
	950			MTH5N95			3-272
NEW	900	1.8	4	MTH6N90	8	170	3-308
		3	3	MTH6N90	6	150	3-282
	850			MTH6N85			3-282
NEW	800	1.5	3.8	BUZ355		125	3-91
	600	1.2	3	MTH6N60		150	3-277
		0.5	4	MTH8N60	8		3-303
	550	1.2	3	MTH6N55	6		3-277
		0.5	4	MTH8N55	8		3-303
	500	0.8	3.5	MTH7N50	7		3-293
		0.6	6	BUZ330	9.5	125	3-87
NEW		0.4	7	MTH13N50	13	150	3-319
	450	0.8	3.5	MTH7N45	7		3-293
		0.4	7	MTH13N45	13		3-319
	400	0.55	4	MTH8N40	8		3-298
		0.3	7.5	MTH15N40	15		3-329
	350	0.55	4	MTH8N35	8		3-298
		0.3	7.5	MTH15N35	15		3-329
NEW	250	0.14	15	MTH30N25	20	125	3-359

* at 25°C

Bold Type indicates new product.

Shaded devices are preferred devices and are recommended for new designs.

Table 5 — N-Channel — continued

NEW	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max		Device	I_D (cont) Amps	P_D^* (Watts) Max	Page
	200	0.16	7.5	MTH15N20	15	150	3-324
		0.08	15	MTH30N20	30		3-354
	150	0.12	10	MTH20N15	20		3-334
		0.06	17.5	MTH35N15	35		3-376
	100	0.07	12.5	MTH25N10	25		3-344
		0.04	20	MTH40N10	40		3-381
	80	0.07	12.5	MTH25N08	25		3-344
		0.04	20	MTH40N08	40		3-381
	60	0.055	17.5	MTH35N06	35		3-365
				MTH35N06E			3-370
		0.028	20	MTH40N06	40		3-381
	50	0.055	17.5	MTH35N05	35		3-365
		0.028	20	MTH40N05	40		3-381
			25	MTH50N05E	50		125

NEW

* $T_C = 25^\circ\text{C}$

Bold Type indicates new product.

Shaded devices are preferred devices and are recommended for new designs

Table 6 — N- and P-Channel Isolated TO-218

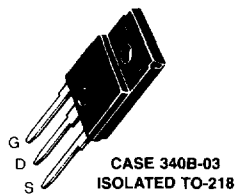
	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	I_D (Amps)	Device	I_D (cont) Amps	P_D^* (Watts) Max	Page
NEW	500	0.4	7	MTG9N50E	9	70	..
NEW	200	0.08	15	MTG20N20	20		..
NEW	100	0.15	10	MTG15P10***	15		..

* $T_C = 25^\circ\text{C}$

**Contact Motorola sales office for data sheet

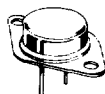
***Indicates P-Channel

Bold Type indicates new product.

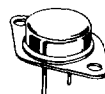


TMOS Power MOSFETs

Metal Packages — TO-204AA/AE



TO-204AA
CASE 1-06



TO-204AE
CASE 197A-02

Table 7 — P-Channel

Drain Current (A)	Gate-Source Voltage (V)	Transconductance (mA/V)	Part Number	Power Dissipation (W)	Thermal Resistance (°C/W)	Package
500	6	1	MTM2P50	2	75	3-407
450			MTM2P45			3-407
250	4	1.5	MTM3P25	3		3-427
	3	2.5	MTM5P25	5		3-447
	2	4	MTM8P25	8		3-462
200	1	2.5	MTM5P20	5		3-442
	0.7	4	MTM8P20	8	125	3-314
180	1	2.5	MTM5P18	5	75	3-442
	0.7	4	MTM8P18	8	125	3-314
100	0.4		MTM8P10		75	3-457
	0.3	6	MTM12P10	12		3-493
80	0.4	4	MTM8P08	8	75	3-457
	0.3	6	MTM12P08	12		3-493
	0.15	10	MTM20P08	20	125	3-339
60	0.3	6	MTM12P06	12	75	3-493
50	0.3	6	MTM12P05	12	75	3-493
	0.2	10	MTM20P05	20	100	**
	0.14	12.5	MTM25P05	25	125	3-349

* @ 25°C

**Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs

Table 8 — N-Channel

Drain Current (A)	Gate-Source Voltage (V)	Transconductance (mA/V)	Part Number	Power Dissipation (W)	Thermal Resistance (°C/W)	Package
1000	10	0.5	MTM1N100	1	75	3-392
	4	1.5	MTM3N100	3	125	3-422
			MTM5N100	5	125	3-472
			MTM8N100	8	125	3-472
			MTM12N100	12	125	3-472

NEW

* @ 25°C

**Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs

Table 8 — N-Channel — continued

V _{DS} (V) Min	V _{DS(on)} (Ohms) Max	I _D (Amps)	Device	I _D (cont) Amps	P _D (Watts) Max	Page
950	10	0.5	MTM1N95	1	75	3-392
	4	1.5	MTM3N95	3	125	3-422
	3	2.5	MTM5N95	5	150	3-272
900	8	1	MTM2N90	2	75	3-402
	4	2	MTM4N90	4	125	3-422
	3	3	MTM6N90	6	150	3-282
850	8	1	MTM2N85	2	75	3-402
	4	2	MTM4N85	4	125	3-422
	3	3	MTM6N85	6	150	3-282
800	7	1.5	MTM3N80	3	75	3-417
	2	3	BUZ84	5.3	125	3-83
	1.5		BUZ84A	6		3-83
750	7	1.5	MTM3N75	3	75	3-417
600	2.8	3	2N6823			3-48
	2.5	1.5	MTM3N60			3-412
	1.6	6	2N6826	6	150	3-53
	1.2	3	MTM6N60			3-277
	0.5	4	MTM8N60	8		3-303
500	4	1	MTM2N50	2	75	3-397
	1.5	2	MTM4N50	4		3-432
		3	2N6762	4.5		3-18
	0.85	4	IRF440	8	125	3-111
	0.8	3.5	MTM7N50	7	150	3-293
	0.5	7	IRF452	12		3-113
	0.4		IRF450	13		3-113
		7.75	2N6770	12		3-37
		7.5	MTM15N50	15	250	3-514
	0.25	12	MTM24N50E	24	300	**
450	1.5	2	MTM4N45	4	75	3-432
	0.85	4	IRF441	8	125	3-111
	0.8	3.5	MTM7N45	7	150	3-293
	0.4	7	IRF451	13		3-113
		7.5	MTM15N45	15	250	3-514

* at 25°C

**Contact Motorola sales office for data sheet

Shaded devices are preferred devices and are recommended for new designs

Metal Packages — TO-204AA/AE (continued)

Table 8 — N-Channel — continued

	Drain-Source Voltage (V) V _{DS}	Gate-Source Voltage (V) V _{GS}	Drain Current (A) I _D	Device	I _D (mA) I _{SS}	P _D (Watt) P _D	Page
NEW	400	1	3	IRF330	5.5	75	3-105
			2.5	MTM5N40	5		3-437
			3.5	2N6760	5.5		3-14
		0.55	5	IRF340	10	125	3-107
			4	MTM8N40	8	150	3-298
		0.3	8	IRF350	15		3-109
			9	2N6768	14		3-32
			7.5	MTM15N40	15	250	3-509
		0.18	18	MTM20N40E	20	300	3-103
		350	1.5	3	IRF333	4.5	75
2N6759	3-14						
1	IRF331			5.5	3-105		
	2.5			MTM5N35	5	3-437	
0.3	8		IRF351	15	150	3-109	
	7.5		MTM15N35	15	250	3-509	
250	0.45		5	MTM10N25	10	100	3-478
200	0.4		5	IRF230	9	75	3-99
				2N6758			3-10
			4	MTM8N20	8		3-452
	0.18	10	IRF240	18	125	3-101	
	0.18	7.5	MTM15N20	15	180	3-324	
	0.12	16	IRF252	25		3-103	
	0.085	IRF250	30	3-103			
		19	2N6766	40	3-27		
0.08	20	MTM40N20	40	250	3-534		
150	0.22	10	IRF243	16	125	3-101	
	0.18	16	IRF241	18		3-101	
	0.12	10	MTM20N15	20	150	3-334	
		16	IRF253	25		3-103	
	0.085		IRF251	30	3-103		
	0.06	22.5	MTM45N15	45	250	3-545	
	100	0.18	8	IRF130	14	75	3-93
6			MTM12N10	12	3-488		
9			2N6756	14	3-6		
0.15		10	MTM20N10	20	100	3-519	
0.11		15	IRF142	24	125	3-95	
			IRF140	27		3-95	
0.08		20	IRF152	33	150	3-97	

* @ 25°C

**Contact Motorola sales office for data sheet

Shaded devices are preferred devices and are recommended for new designs

Table 8 — N-Channel — continued

V _{GS} (V)	r _{DS(on)} (Ω)	I _D (A)	Part Number	P _D (W)	θ _{JA} (°C/W)	Notes
100	0.075	12.5	MTM25N10	40	250	3-344
	0.055	20	IRF150	40	250	3-97
		24	2N6764	38	250	3-22
	0.04	27.5	MTM55N10	55	250	3-556
80			MTM55N08			3-556
60	0.15	7.7	MTM15N06E	17	75	3-503
	0.085	15	IRF141	27	125	3-95
	0.055	17.5	MTM35N06	35	150	3-365
			MTM35N06E			3-370
		20	IRF151	40		3-97
	0.028	30	MTM60N06	60	250	3-556
50	0.2	6	MTM12N05	12	75	3-483
	0.055	17.5	MTM35N05	35	125	3-365
	0.035	29	MTM45N05E	45		3-539
	0.028	25	MTM60N05E	60		3-556
		30	MTM60N05	60	250	3-556

* @ 25°C

**Contact Motorola sales office for data sheet.

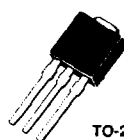
Shaded devices are preferred devices and are recommended for new designs



TO-204AA
(TO-3)
CASE 1-06



TO-220AB
CASE 221A-04



TO-251
CASE 369-03



TO-252
CASE 369A-04

TMOS Power MOSFETs

Logic Level Power MOSFETs

Logic level MOSFETs are fully enhanced with 5 volts applied to the gate.

Table 9 — N-Channel Logic Level Power MOSFETs (TO-204AA and TO-220AB)

	V _{(BR)DSS} (Volts) Min	r _{DS(on)} (Ohms) Max	@ I _D (Amps)	Device	I _{D(cont)} Amps	P _D @ T _C = 25°C Watts	Package TO-	Page	
NEW	150	0.3	5	MTM10N15L	10	75	204AA	3-473	
				MTP10N15L			220AB	3-473	
	120	0.45	4	MTP8N15L	8		204AA	3-473	
				MTM10N12L			220AB	3-473	
NEW	100	0.2	6	MTM12N10L	12		204AA	..	
				MTP12N10L			220AB	3-709	
	80	1.25	2	MTP3N10L	3		220AB	3-591	
				MTP15N08L			220AB	3-724	
NEW	60	0.135	7.5	MTM12N08L	12	100	204AA	..	
				MTP12N08L			220AB	3-709	
	50	0.2	6	MTP3N08L	3		220AB	3-591	
				MTP40N06EL			220AB	3-787	
NEW	50	0.06	20	MTM25N06L	25	75	204AA	3-529	
				MTP25N06L			220AB	3-529	
	40	0.15	7.5	MTM15N06L	15		204AA	3-498	
				MTP15N06L			220AB	3-498	
NEW	30	0.18	6	MTP3055EL	12	40	TO-252	3-817	
				MTD3055EL			TO-251	3-266	
	20	0.6	2	MTD3055EL1	4		220AB	3-266	
				MTP4N06L			220AB	3-611	
NEW	20	0.032	25	MTP50N05EL	50	150	220AB	3-800	
				MTM25N05L			204AA	3-529	
	15	0.08	12.5	MTP25N05L	25		220AB	3-529	
				MTM15N05L			204AA	3-498	
NEW	10	0.15	7.5	MTP15N05L	15		220AB	3-498	
				MTP4N05L			220AB	3-611	

**Contact Motorola sales office for data sheet

Bold Type indicates new product.

Shaded devices are preferred devices and are recommended for new designs



TMOS Power MOSFETs

Hermetic, Isolated, Tab Mount
Power MOSFETs

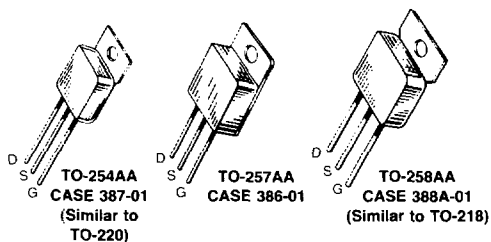


Table 10 — TO-254AA, TO-257AA, and TO-258AA
ALL NEW DEVICES**

	V(BR)DSS (Volts) Min	rDS(on) (Ohms) Max	@	ID (Amps)	Device	ID(cont) Amps	PD @ Tc = 25°C Watts	Package TO-
NEW	1000	3		2.5	MHR5N100	5	125	258AA
NEW					MHM5N100			254AA
NEW		8		0.5	MHT1N100	1	50	257AA
NEW	800	6		1	MHT2N80	2		
NEW	500	0.4		7	MHR15N50	15	125	258AA
NEW					MHM12N50	12		254AA
NEW		1.8		3.5	MHR7P50*	7		258AA
NEW					MHM7P50*			254AA
NEW		1.5		3	MHT4N50	4	50	257AA
NEW	200	6		1	MHT2P50*	2		
NEW		0.1		16	MHR30N20	30	125	258AA
NEW					MHM25N20	25		254AA
NEW		0.4		6	MHT8N20	8	50	257AA
NEW		0.75		4	MHR8P20*		125	258AA
NEW					MHM8P20*			254AA
NEW					MHT8P20*			257AA
NEW	100	0.065		20	MHR35N10	35		258AA
NEW					MHM25N10	25		254AA
NEW		0.15		10	MHM20P10*	20		
NEW		0.2		5	MHT10N10	10	50	257AA
NEW		0.3			MHT12P10*			
NEW	60	0.05		15	MHR35N06M	35	125	CASE 388-01

*Indicates P-Channel.

**Contact Motorola sales office for data sheet.

Bold Type indicates new product.

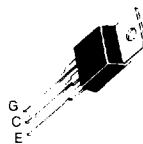
Note: All of these devices can be purchased with JTX or JTXV equivalent processing by adding HX or HVX suffix to device type.



TMOS Insulated Gate Bipolar Transistors

Gain Enhanced MOSFETs (IGBTs)

This relatively new series of power transistors combines the high input resistance of a MOSFET with the low internal on-resistance of a bipolar transistor to provide more efficient performance than either a MOSFET or bipolar device in low-frequency switching service. Recommended for motor drive circuits, home appliances, and other applications where high switching speed is not a requirement. All are N-Channel.

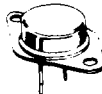


TO-220AB
CASE 221A-04

Table 11 — TO-220AB

Temperature (°C)	$r_{DS(on)}$ (Ohms) Max	I_C (Amps)	Device	I_C (cont) Amps	P_D^* (Watts) Max	Page
500	0.27	10	MGP20N50	20	100	3-184
	1.6	2.5	MGP5N50	5	50	3-180
450	0.27	10	MGP20N45	20	100	3-184
	1.6	2.5	MGP5N45	5	50	3-180

* at 25°C



TO-204AA
(TO-3)
CASE 1-06

Table 12 — TO-204AA

Temperature (°C)	$r_{DS(on)}$ (Ohms) Max	I_D (Amps)	Device	I_D (cont) Amps	P_D^* (Watts) Max	Page
500	0.27	10	MGM20N50	20	100	3-184
	1.6	2.5	MGM5N50	5	50	3-180
450	0.27	10	MGM20N45	20	100	3-184
	1.6	2.5	MGM5N45	5	50	3-180

* at 25°C

TMOS SENSEFETs

SENSEFETs are conventional power MOSFETs with an option provided to sense the drain current by measuring a small proportion of the total drain current. These devices are ideal for current mode switching regulators and motor controls.

CASE 314B
(5 PIN TO-220)

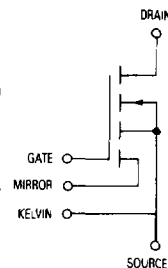


Table 13 — Case 314B

	$V_{DS(on)}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	I_D (Amperes)	Device	I_D (Amperes) Max	P_D (Watts) Max	Page
NEW	50	0.04	20	MTP4N25M	20	125	3-753
NEW	80	0.065	15	MTP10N25M	25	125	3-774
	100	0.25	5	MTP10N10M	10	75	3-693
		0.085	12.5	MTP25N10M	25	100	..
	250	1.5	4	MTP4N25M	4	75	..
		0.45	2	MTP10N25M	10	100	..

* at 25°C

**Contact Motorola sales office for data sheet

Bold Type indicates new product.

DPAK



CASE 369A-04***
TO-252



CASE 369-03***
TO-251

Table 14 — Case 369A-04 Surface Mount
Case 369-03 Insertion Mountable

	$V_{DS(on)}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	I_D (Amperes)	Device	I_D (Amperes) Max	P_D (Watts) Max	Page
	500	4	1	MTD2N50	2	1.75	3-216
	400	5	0.5	MTD1N40	1		3-208
	200	0.7	2	MTD4N20	4		3-224
NEW		1.5	1	MTD2N20	2		3-213
	150	0.3	3	MTD6N15	6		3-244
	100	0.25		MTD6N10			3-239
	80			MTD6N08			3-239
	60	0.6	2	MTD4P05†	4		3-228
		0.4	2.5	MTD5N05	5		3-234
		0.3	6	MTD2N55†	12		3-255
NEW		0.15	4	MTD3N55E	8		3-280
	50	0.6	2	MTD4P05†	4		3-228
		0.4	2.5	MTD5N05	5		3-234
		0.1	5	MTD10N05E	10		3-249

* at 25°C

**Power rating when mounted on a board with the minimum pad size recommended

***Add -1 Suffix to part number to order insertion mountable package.

***Available in tape and reel.

† Indicates P-Channel

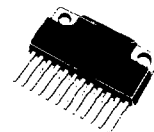
Bold Type indicates new product.

Shaded devices are preferred devices and are recommended for new designs.



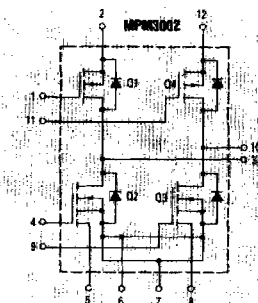
TMOS Power MOSFETs

Multiple Chip Products

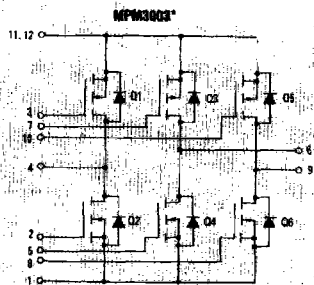


CASE 806-02

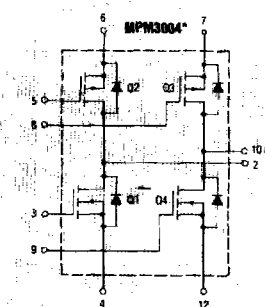
Table 15 — Multiple Chip Products in the Isolated ICePAK*



H-Bridge with Current Sensing
100 Volts and 8 Amperes
P-Channel MOSFETs — $r_{DS(on)}$ = 0.4 Ohms Max
N-Channel MOSFETs — $r_{DS(on)}$ = 0.15 Ohms Max
See Page 3-198



Three-Phase Bridge with Complementary Outputs
80 Volts and 10 Amperes
P-Channel — $r_{DS(on)}$ = 0.28 Ohms Max
N-Channel — $r_{DS(on)}$ = 0.15 Ohms Max



H-Bridge
80 Volts and 10 Amperes
P-Channel MOSFETs — $r_{DS(on)}$ = 0.28 Ohms Max
N-Channel MOSFETs — $r_{DS(on)}$ = 0.15 Ohms Max

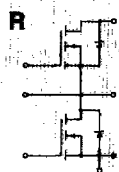
Table 16 — TMOS Power MOSFET Modules*

Max I_D (cont) Amps	Max V_{DS} Volts	Device Type	Module Type	Max $V_{DS(on)}$ Volts	Conditions		Max. Resistive Switching					P_D $T_C = 25^\circ C$ Watts	Case No.	Circuit Config.
					I_D Amps	V_{GS} Volts	t_{on} μs	t_{off} μs	t_r μs	Conditions	t_d μs			
15	450	MT15FR45	Six-pack	6	15x6	10	0.6	2	0.5	15	10	125x6	809-01	Y
50	450	MT50BY45	Dual	7	50	10	0.8	1.3	0.2	50	10	400x2	816-01	R

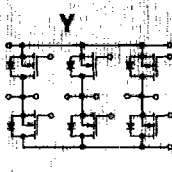
Table 17 — IGBT Power Modules*

Max I_C (cont) Amps	Max V_{CE} Volts	Device Type	Module Type	Max V_{CE} Volts	Conditions		Max. Resistive Switching					P_D $T_C = 25^\circ C$ Watts	Case No.	Circuit Config.
					I_C Amps	V_{GE} Volts	t_{on} μs	t_s μs	t_f μs	Conditions	t_d μs			
25	1000	MG25BZ100	Dual	5	25	15	1	2	1	25	15	200x2	813-01	Z
50	1000	MG50BZ100	Dual	5	50	15	1	1.5	1	50	15	300x2	813-01	Z
100	1000	MG100BZ100	Dual	5	100	15	1	1.5	1	100	15	400x2	814B-01	Z
25	500	MG25BZ50	Dual	5	25	15	1	1.5	1	25	15	125x2	813-01	Z
50	500	MG50BZ50	Dual	5	50	15	1	1.5	1	50	15	300x2	813-01	Z
75	500	MG75BZ50	Dual	5	75	15	1	1.5	1	75	15	350x2	813-01	Z
100	500	MG100BZ50	Dual	5	100	15	1	1.5	1	100	15	400x2	813-01	Z

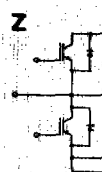
Table 18 — TMOS Power MOSFET and IGBT Power Module Circuit Configurations and Packages.*



CASE 816-01



CASE 809-01

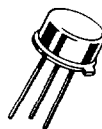


CASE 813-01

CASE 814B-01

*Contact Motorola sales office for data sheets.

Small-Signal MOSFETs



TO-205AF
(TO-39)
CASE 79-05

Table 19 — Switches and Choppers — TO-205AF

Power Dissipation (W)	Gate-Source Capacitance (pF)	Transconductance (mA/V)	Part Number	Drain-Source Saturation Voltage (V)	Drain Current (mA)	Reference
240	6	0.5	VN2406B	0.63	2.5	**
	10	0.5	VN2410B	0.63	2.5	**
200	0.8	2.25	2N6790	3.5	20	**
	0.8	2	IRFF220	3.5	20	3-163
	1.5	1.5	2N6784	2.25	15	3-44
	6.4	0.25	MFE9200	0.4	1.8	3-177
170	6	0.5	VN1708B	0.63	2.5	**
	10	0.5	VN1710B	0.63	2.5	**
100	0.3	3	IRFF120	6	20	3-161
90	4	1	2N6661	0.9	6.25	3-2
60	3	1	2N6660	1.1	6.25	3-2
	5	0.5	MFE910	1	6.25	3-171
35	1.8	1	2N6659	1.4	6.25	**
30	1.2	1	VN0300B	1.25	6.25	**

**Contact Motorola sales office for data sheet

Table 20 — 4-Pin Dip — Case 370-01



CASE 370-01

P_D @ $T_C = 25^\circ\text{C}$ 1 Watt Max

Power Dissipation (W)	Gate-Source Capacitance (pF)	Transconductance (mA/V)	Part Number	Drain-Source Saturation Voltage (V)	Drain Current (mA)	Reference
200	0.8	0.4	IRFD220	0.8	3-157	
	1.5	0.3	IRFD210	0.6	3-155	
150	2.4	0.3	IRFD213	0.45	3-155	
100	0.3	0.6	IRFD120	1.3	3-153	
	0.6	0.8	IRFD110	1	3-151	
	0.6	-0.8	IRFD9120	-1	**	
	1.2	-0.3	IRFD9110	-0.7	**	
	2.4	0.25	IRFD120	0.5	3-149	
60	0.4	0.6	IRFD123	1.1	3-153	
	0.8	0.8	IRFD113	0.8	3-151	
	0.8	-0.8	IRFD9123	-0.8	**	

**Contact Motorola sales office for data sheet

Small-Signal MOSFETs (continued)



TO-226AA
(TO-92)
CASE 29-04

Table 21 — Plastic — TO-226AA

$V_{DS(ON)}$ (Volts)	$I_{DS(on)}$ @ I_D (Ohms)	I_D (Amps)	Device	$I_D(Cont)$ (Amps) Max	P_D @ $T_C = 25^\circ C$ Watts Max	Page
240	6	0.5	VN2406L	0.158	0.4	..
	10	0.5	VN2410L	0.12	0.4	..
200	6.4	0.25	BS107A	0.25	0.6	..
	6.4	0.25	MPF9200	0.4	0.5	3-195
	14	0.2	BS107	0.25	0.6	..
170	6	0.5	VN1706L	0.158	0.4	..
	10	0.5	VN1710L	0.12	0.4	..
150	12	0.1	MPF4150†	0.25	0.625	3-193
60	5	0.5	2N7000	0.5	0.4	3-58
	5	0.2	BS170	0.195	0.4	3-62
	5	0.5	VN0610LL	0.12	0.4	3-823
	7.5	0.5	VN2222LL	0.099	0.4	3-825
30	1.2	1	VN0300L	0.4	0.4	..

**Contact Motorola sales office for data sheet

†Depletion Mode



TO-236AA
(SOT-23)
CASE 318-02

Table 22 — Surface Mount — Case 318-02

$V_{DS(ON)}$ (Volts) Min	$I_{DS(on)}$ @ I_D (Ohms) Max	I_D (Amps)	Device	$I_D(Cont)$ (Amps) Max	P_D @ $T_C = 25^\circ C$ Watts Max	Package	Page
100	6	0.1	BSS123	0.17	0.2	318-02	3-65
60	5	0.2	MMBF170	0.5	0.2	318-02	3-188
	7.5	0.5	2N7002	0.8	0.2	318-02	3-60

TO-220 Leadforms

LEADFORM AJ	LEADFORM AK	LEADFORM S
LEADFORM W	LEADFORM WC	LEADFORM 2A
LEADFORM 3	LEADFORM 3A	LEADFORM 5F
LEADFORM 5FA	LEADFORM 5R	LEADFORM 5RA
LEADFORM 10R	LEADFORM 10RC	LEADFORM 15FA
LEADFORM 16	LEADFORM 16A	Ordering Information: To purchase a leadformed device, contact your local sales office and advise which leadform is required. The sales office will contact the factory and obtain a part number to be used to order the leadformed device.