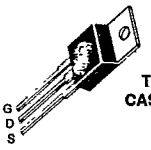
Selection by Package

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



TO-220AB
CASE 221A-04

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
	60	0.6	3.5	MTP7P06	7		3-651
NEW		0.3	6	MTP2955	12		3-606
				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

* @ 25°C
Bold Type indicates new product.
Shaded devices are preferred devices and are recommended for new designs.

Plastic Packages — TO-220AB (continued)

T-91-60

Table 2 — N-Channel

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	I_D (Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
	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
NEW		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
		2.5	1.5	MTP3N60	3		3-412
NEW		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	1	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		MTP8N50			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.

Plastic Packages — TO-220AB (continued)

Table 2 — N-Channel — continued

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	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
		2.5	MTP5N40	5		3-437
	0.55		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		3-452
		3.5	BUZ73	7	40	3-75
	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

* @ 25°C
Shaded devices are preferred devices and are recommended for new designs.

Plastic Packages — TO-220AB (continued)

Table 2 — N-Channel — continued

$V_{(BR)DSS}$ (Volts) 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.

Plastic Packages — TO-220AB (continued)

Table 2 — N-Channel — continued

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	(Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
60	0.16	7.5	MTP15N06	15	75	3-719
	0.15		MTP15N06E			3-503
		6	MTP3055E	12	40	3-811
	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	14		3-165
	0.1		BUZ71	12		3-70
		7.5	MTP15N05E	15		**
			IRFZ20			3-165
	0.08	12.5	MTP25N05	25	100	3-524
	0.07		MTP25N05E			3-745
			IRFZ32			3-167
	0.06	15	BUZ11A		75	3-67
	0.05		MTP30N05E	30		3-768
	0.04		BUZ11			3-67
	0.035	29	MTP45N05E	45	125	3-539
			IRFZ42	46		3-169
	0.028	25	MTP50N05E	50		3-550
		29	IRFZ40	51		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

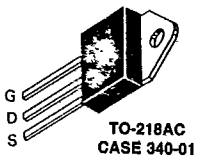
	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	(Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
NEW	60	0.3	6	MTA2955***	7	33	**
NEW		0.15		MTA3055E	10		**
NEW		0.1	7.5	MTA15N06E	15	40	**
NEW		0.028	25	MTA30N06E	30	50	**

* @ 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



TO-218AC
CASE 340-01

Table 4 — 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
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

* @ 25°C
Shaded devices are preferred devices and are recommended for new designs.

Table 5 — N-Channel

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
NEW	1000	2	3	**MTH6N100**	6	150	3-287
		3	2.5	MTH5N100	5		3-272
	950			MTH5N95			3-272
NEW	900	1.8	4	**MTH8N90**	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
NEW		0.6	6	**BUZ330**	9.5	125	3-87
		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

* @ 25°C
Bold Type indicates new product.
Shaded devices are preferred devices and are recommended for new designs.

Plastic Packages — TO-218AC (continued)

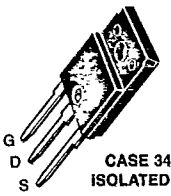
Table 5 — N-Channel — continued

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	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
NEW			25	**MTH50N05E**	50	125	3-386

* @ 25°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	$r_{DS(on)}$ (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		**



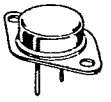
CASE 340B-03
ISOLATED TO-218

* T_C = 25°C
**Contact Motorola sales office for data sheet.
***Indicates P-Channel
Bold Type indicates new product.

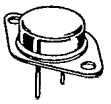
TMOS™

TMOS Power MOSFETs

Metal Packages — TO-204AA/AE



TO-204AA
CASE 1-06



TO-204AE
CASE 197A-02

Table 7 — 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	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
	0.15	10	MTM20P10	20	125	3-339
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
	0.14	12.5	MTM25P06	25	125	3-349
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

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
1000	10	0.5	MTM1N100	1	75	3-392
	4	1.5	MTM3N100	3	125	3-422
	3	2.5	MTM5N100	5	150	3-272
NEW 1.2	1.2	5	MTM10N100E	10	300	**

* @ 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

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (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
NEW	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

* @ 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

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	I_D (Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
	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
NEW		0.18	13	MTM26N40E	26	300	**
	350	1.5	3	IRF333	4.5	75	3-105
				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		250	3-509
	250	0.45	5	MTM10N25	10	100	3-478
	200	0.4		IRF230	9	75	3-99
				2N6758			3-10
			4	MTM8N20	8		3-452
		0.18	10	IRF240	18	125	3-101
		0.16	7.5	MTM15N20	15	150	3-324
		0.12	16	IRF252	25		3-103
		0.085		IRF250	30		3-103
			19	2N6766			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
		0.085		IRF140	27		3-95
		0.08	20	IRF152	33	150	3-97

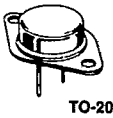
* @ 25°C
**Contact Motorola sales office for data sheet.
Shaded devices are preferred devices and are recommended for new designs.

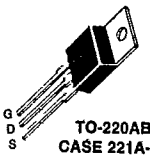
Metal Packages — TO-204AA/AE (continued)

Table 8 — N-Channel — continued

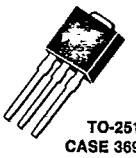
$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
100	0.075	12.5	MTM25N10E	25	150	**
	0.07		MTM25N10			3-344
	0.055	20	IRF150	40		3-97
		24	2N6764	38		3-22
	0.04	27.5	MTM55N10	55	250	3-556
80			MTM55N08			3-556
60	0.15	7.7	MTM15N06E	17	75	3-503
	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	MTM50N05E	50		3-550
		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)

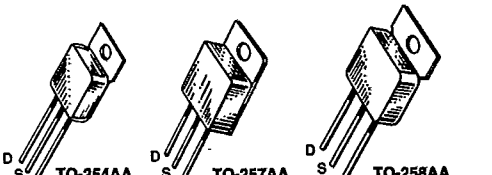
	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	$I_{D(cont)}$ Amps	P_D @ T_C = 25°C Watts	Package TO-	Page
	150	0.3	5	MTM10N15L	10	75	204AA	3-473
				MTP10N15L			220AB	3-473
NEW		0.45	4	**MTP8N15L**	8			3-667
	120	0.3	5	MTM10N12L	10		204AA	3-473
				MTP10N12L			220AB	3-473
	100	0.2	6	MTM12N10L	12		204AA	**
				MTP12N10L			220AB	3-709
		1.25	2	MTP3N10L	3			3-591
NEW	80	0.135	7.5	**MTP15N08L**	15			3-724
		0.2	6	MTM12N08L	12		204AA	**
				MTP12N08L			220AB	3-709
		1.25	2	MTP3N08L	3			3-591
NEW	60	0.06	20	**MTP40N06EL**	40	150		3-787
		0.08	12.5	MTM25N06L	25	100	204AA	3-529
				MTP25N06L			220AB	3-529
		0.15	7.5	MTM15N06L	15	75	204AA	3-498
				MTP15N06L			220AB	3-498
NEW		0.18	6	**MTP3055EL**	12	40		3-817
NEW				**MTD3055EL**			TO-252	3-266
NEW				**MTD3055EL1**			TO-251	3-266
		0.6	2	MTP4N06L	4	25	220AB	3-611
NEW	50	0.032	25	**MTP50N05EL**	50	150		3-800
		0.08	12.5	MTM25N05L	25	100	204AA	3-529
				MTP25N05L			220AB	3-529
		0.15	7.5	MTM15N05L	15	75	204AA	3-498
				MTP15N05L			220AB	3-498
		0.6	2	MTP4N05L	4	25		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™

TMOS Power MOSFETs

Hermetic, Isolated, Tab Mount Power MOSFETs



TO-254AA
CASE 387-01
(Similar to TO-220)

TO-257AA
CASE 386-01

TO-258AA
CASE 388A-01
(Similar to TO-218)

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

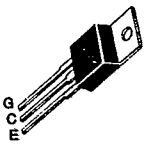
	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amps)	Device	$I_{D(cont)}$ Amps	P_D @ T_C = 25°C Watts	Package TO-
NEW	1000	3	2.5	MHR5N100	5	125	258AA
NEW				MHM5N100			254AA
NEW		8	0.5	MHT1N100	1	50	257AA
NEW	800	6	1	MHT2N80	2		
NEW	500	0.4	7	MHR15N50	15	125	258AA
NEW				MHM12N50	12		254AA
NEW		1.8	3.5	MHR7P50*	7		258AA
NEW				MHM7P50*			254AA
NEW		1.5	3	MHT4N50	4	50	257AA
NEW		6	1	MHT2P50*	2		
NEW	200	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 HXV 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.

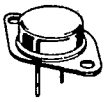


TO-220AB
CASE 221A-04

Table 11 — TO-220AB

$V_{(BR)CES}$ (Volts) Min	$r_{CE(on)}$ (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

* @ 25°C



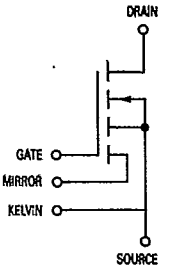
TO-204AA
(TO-3)
CASE 1-06

Table 12 — TO-204AA

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (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

* @ 25°C

CASE 314B
(5 PIN TO-220)



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.

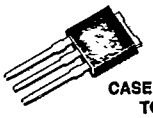
Table 13 — Case 314B

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	(Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
NEW	60	0.04	20	MTP40N06M	40	125	3-793
NEW	60	0.065	15	MTP30N08M	30		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	**

* @ 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

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	(Amps)	Device	I_D (cont) Amps	P_D* (Watts) Max	Page
	500	4	1	MTD2N50	2	1.75**	3-219
	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	MTD4P06†	4		3-229
		0.4	2.5	MTD5N06	5		3-234
		0.3	6	MTD2955†	12		3-255
NEW		0.15	4	MTD3055E	8		3-260
	50	0.6	2	MTD4P05†	4		3-229
		0.4	2.5	MTD5N05	5		3-234
		0.1	5	MTD10N05E	10		3-249

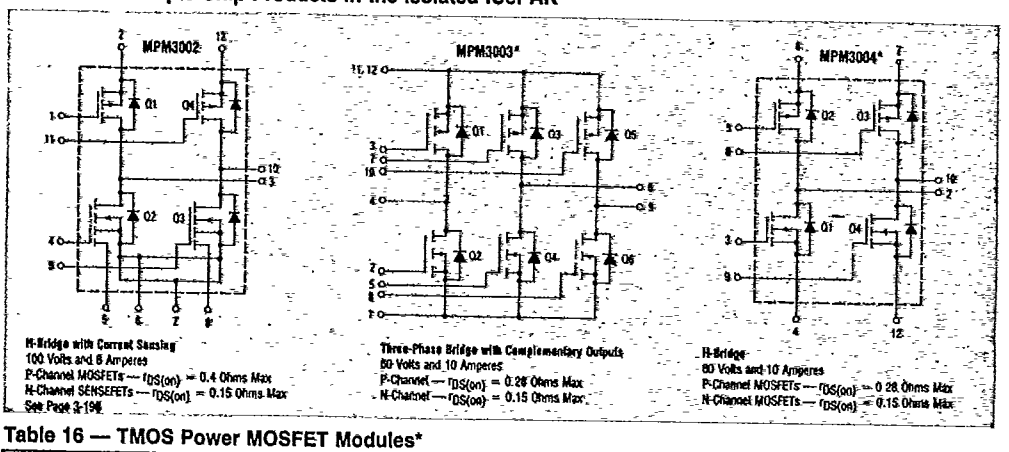
* @ 25°C
**Power rating when mounted on a board with the minimum pad size recommended.
***Add -1 Suffix to part number to order insertion mountable package.
****Available in tape and reel.
† Indicates P-Channel
Bold Type indicates new product.
Shaded devices are preferred devices and are recommended 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 6 Amperes
P-Channel MOSFETs — $r_{DS(on)}$ = 0.4 Ohms Max
N-Channel SENSEFETs — $r_{DS(on)}$ = 0.15 Ohms Max
See Page 3-196

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*

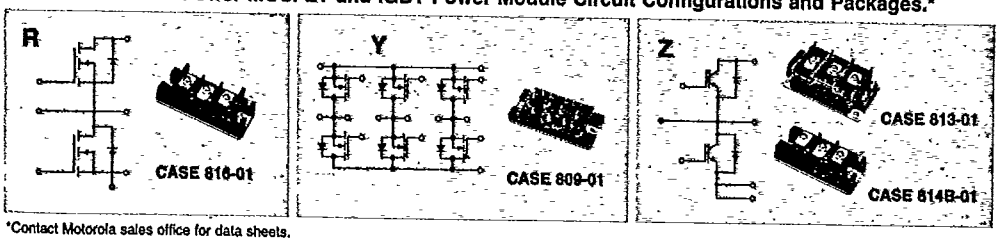
Max $I_{D(cont)}$ Amps	Max V_{DSS} Volts	Device Type	Module Type	Max $V_{DS(on)}$ Volts	Conditions I_D Amps	Conditions V_{GS} Volts	Max. Resistive Switching t_{on} µs	t_{off} µs	t_f µs	Conditions I_D(A)	Conditions V_G	P_D T_C = 25°C Watts	Case No.	Circuit Config.
15	450	MT15FR45	Six-pack	6	15x6	10	0.6	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*

UL RECOGNIZED

Max $I_{C(cont)}$ Amps	Max V_{CES} Volts	Device Type	Module Type	Max V_{CE} Volts	Conditions I_C Amps	Conditions V_{GE} Volts	Max. Resistive Switching t_{on} µs	t_s µs	t_f µs	Conditions I_C(A)	Conditions V_G(V)	P_D T_C = 25°C Watts	Case No.	Circuit Config.
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

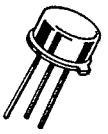
Table 18 — TMOS Power MOSFET and IGBT Power Module Circuit Configurations and Packages.*



*Contact Motorola sales office for data sheets.

TMOS

Small-Signal MOSFETs



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

Table 19 — Switches and Choppers — TO-205AF

$V_{(BR)DSS}$ (Volts)	$r_{DS(on)}$ (Ohms)	@ I_D (Amps)	Device	$I_{D(Cont)}$ (Amps)	P_D @ T_C = 25°C (Watts)	Page
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	VN1706B	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°C 1 Watt Max

$V_{BR(DSS)}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	@ I_D (Amp)	Device	$I_{D(Cont)}$ (Amp) Max	Page
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	IRFD1Z0	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.

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

Table 21 — Plastic — TO-226AA

$V_{(BR)DSS}$	$r_{DS(on)}$ @ I_D (Ohms) Max	(Amp)	Device	$I_{D(Cont)}$ (Amp) Max	P_D @ T_C = 25°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	**

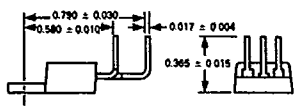
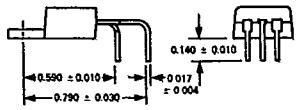
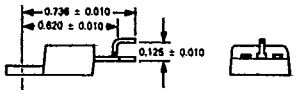
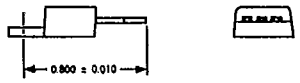
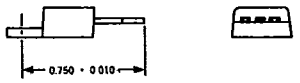
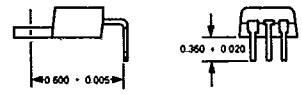
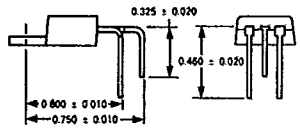
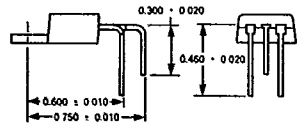
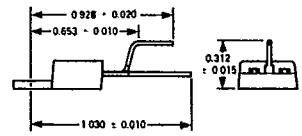
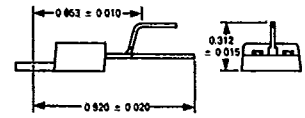
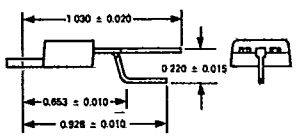
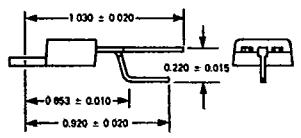
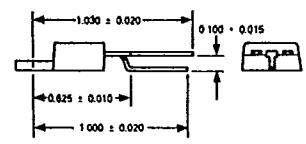
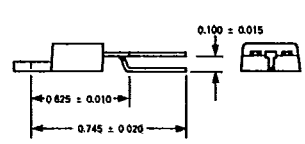
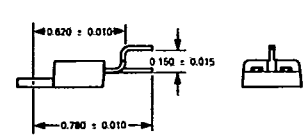
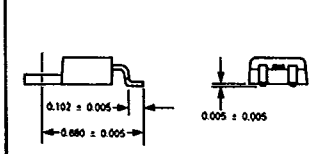
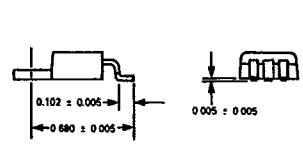
**Contact Motorola sales office for data sheet.
†Depletion Mode

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

Table 22 — Surface Mount — Case 318-02

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ I_D (Ohms) Max	(Amp)	Device	$I_{D(Cont)}$ (Amp) Max	P_D @ T_C = 25°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.