SG265/D
Rev 19

MOTOROLA

POWER TMOS® MOSFETs

TMOS Power MOSFETs Numbering System

Wherever possible, Motorola has used the following numbering systems for TMOS power MOSFET products.

MTP75N06HD

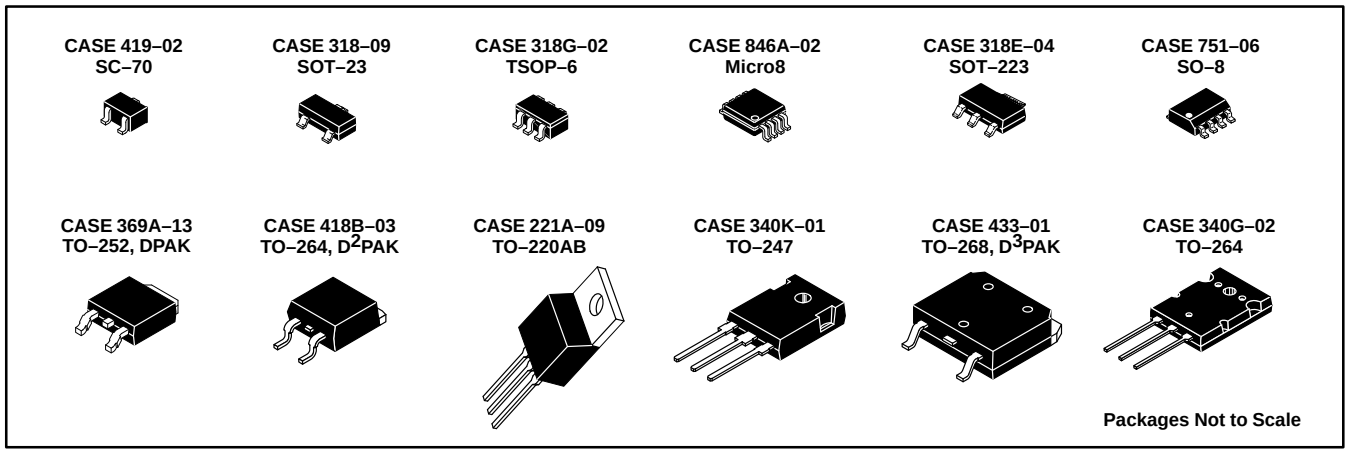
- MOTOROLA
  - X FOR ENGINEERING SAMPLES
- TMOS
  - T FOR TMOS
  - L FOR SMARTDISCRETES
  - G FOR IGBT (except MGSF)
- PACKAGE TYPE
  - P FOR PLASTIC TO-220
  - D FOR DPAK
  - A FOR TO-220 ISOLATED
  - W FOR TO-247
  - B FOR D^2PAK
  - Y FOR TO-264
  - E FOR SOT-227B
  - V FOR D^3PAK
- CURRENT
- CHANNEL POLARITY, N OR P
- VOLTAGE RATING DIVIDED BY 10
- OPTIONAL SUFFIX:
  - L FOR LOGIC LEVEL
  - E FOR ENERGY RATED
  - T4 FOR TAPE & REEL (DPAK/D^2PAK)
  - RL FOR TAPE & REEL (DPAK)
  - HD FOR HIGH CELL DENSITY
  - V FOR TMOS V (FIVE)

Example of exceptions: MTD/MTP3055E
MTD/MTP2955E

SO-8 (MiniMOS)™, Micro8™ and SOT-223 Power MOSFETs

MMSF4P01HDR1

- MOTOROLA
- TMOS
  - M FOR MINIATURE
- PACKAGE TYPE
  - DF — DUAL FET (SO–8)
  - SF — SINGLE FET (SO–8)
  - FT — FET TRANSISTOR (SOT–223)
  - MTSF — SINGLE FET (Micro8)
  - MTDF — DUAL FET (Micro8)
  - MGSF — TSOP–6, SOT–23
- CURRENT
- CHANNEL POLARITY, N OR P
  - C FOR COMPLEMENTARY
- VOLTAGE RATING DIVIDED BY 10
- OPTIONAL SUFFIX:
  - E FOR ENERGY RATED
  - HD FOR HIGH CELL DENSITY
  - L FOR LOGIC LEVEL
  - V FOR TMOS V (FIVE)
  - Z FOR ESD
- R1 AND R2 FOR TAPE & REEL MiniMOS
  T1 AND T3 FOR TAPE & REEL SOT-223



TMOS®

HD TM TMOS

TMOS V TM

Table 1. SO-8 (MiniMOS™) — Case 751–06

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS} 10 V (mΩ)	$R_{DS(on)}$ @ V_{GS} 4.5 V (mΩ)	$R_{DS(on)}$ @ V_{GS} 2.7 V (mΩ)	I_D (cont) Amps	Device (3)	P_D (1,2) (Watts) Max	Configuration
60	100	200	—	3.3	***MMDF3N06HD***	2	Dual N–Channel
50	300	500	—	1.5	***MMDF1N05E***	2	Dual N–Channel
40	80	100	—	3.4	***MMDF3N04HD***		
30	12.5	20	—	12	***MMSF3300***	2.5	Single N–Channel
	25	—	—	7.3	***MMDF3304***	2	Dual N–Channel
	28	40	—	8	***MMSF7N03HD***		
	40	50	—	5	***MMSF5N03HD***		
	70	75	—	2.8	***MMDF3N03HD***	2	Dual N–Channel
	70/200(4)	75/300	—	2	***MMDF2C03HD***		Complementary
	37	55	—	6	***MMDF6N03HD***		Dual N–Channel
	100	110	—	3	***MMSF3P03HD***	1.5	Single P–Channel
	200	300	—	2	***MMDF2P03HD***		Dual P–Channel
20	47	—	—	6	***MMDF6N02HD***	2.5	Dual P–Channel
	—	30	45	8.2	***MMSF5N02HD***		Single N–Channel
	90	100	—	3	***MMDF3N02HD***	2	Dual N–Channel
	100	200	—	2	***MMDF2N02E***		
	90/160(4)	100/180(4)	—		***MMDF2C02HD***		Complementary
	100/250(4)	200/400(4)	—		***MMDF2C02E***		
	—	30	45	6.4	***MMSF5P02HD***	2.5	Single P–Channel
	—	33	50	7.8	***MMDF3207***	2	Dual P–Channel
	75	95	—	3	***MMSF3P02HD***	1.5	
	160	180	—	2	***MMDF2P02HD***		
	250	400	—		***MMDF2P02E***		
			—		***MMSF2P02E***		Single P–Channel
	—	25	35	11	***MMSF3205***	2.5	Single P–Channel
12	—	45	55	4	***MMDF4N01HD***	2	Dual N–Channel
	—	45/180	55/220(4)	2	***MMDF2C01HD***		Complementary
	—	80	90	4	***MMSF4P01HD***	1.5	Single P–Channel
	—	180	220	2	***MMDF2P01HD***		Dual P–Channel

(1) T_C = 25°C
(2) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.
(3) Available in tape and reel only — R1 suffix = 500/reel, R2 suffix = 2500/reel.
(4) N-Channel/P-Channel $R_{DS(on)}$ with the minimum recommended footprint.

Devices listed in ***bold, italic*** are Motorola preferred devices.

Table 2. EZFET™ — SO–8 Power MOSFETs with Zener Gate Protection — Case 751–06

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device[3]	P_D[1,2] (Watts) Max	V_{GS} (Volts) Max	Configuration
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)					
50	300	500	—	2	***MMDF2N05Z***	2.0	±15	Dual N–Channel
30	30	40	—	5	***MMSF7N03Z***	2.5		Single N–Channel
20	—	22	27	6	***MMSF10N02Z***	2.5	±10	
	—	27	35	5	***MMDF7N02Z***	2.0	±12	Dual N–Channel
	—	20	30	11.5	***MMDF3200Z***	2.0	±12	Dual N–Channel

(1) T_C = 25°C
(2) Power rating when mounted on 1” square copper pad on FR–4/G–10 Board (V_{GS} = 4.5 V, @ steady state).
(3) Available in tape and reel only — R1 suffix = 500/reel, R2 suffix = 2500/reel.

Table 3. Micro8™ — Case 751–06

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device[3]	P_D[1,2] (Watts) Max	Configuration
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)				
30	135	222	—	1	***MTDF1N03HD***	1.25	Dual N–Channel
	90	150	—	2.4	***MTSF2P03HD***	1.8	Single P–Channel
	40	60	—	3	***MTSF3N03HD***		Single N–Channel
20	—	120	160	1.7	***MTDF1N02HD***	1.25	Dual N–Channel
	—	175	280	1.6	***MTDF1P02HD***		Dual P–Channel
	—	160	190	1.5	***MTSF1P02HD***	1.8	Single P–Channel
	—	90	120	2.4	***MTSF2P02HD***	1.8	Single P–Channel
	—	40	50	3.8	***MTSF3N02HD***	1.8	Single N–Channel
	—	120/175	160/280	1.7	***MTDF1C02HD***	1.25	Complementary

(1) T_C = 25°C
(2) Power rating when mounted on 1” square copper pad on FR–4/G–10 Board (V_{GS} = 4.5 V, @ steady state).
(3) Available in tape and reel only — R1 suffix = 500/reel, R2 suffix = 2500/reel.

Table 4. SOT-223 — Case 318E–04

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device[4]	P_D[1] (Watts) Max	Polarity
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)				
100	0.30	—	—	1	***MMFT1N10E***	0.8[3]	N–Channel
60	—	0.14	—	1.5	***MMFT3055VL***[2]		N–Channel
	0.13	—	—	1.7	***MMFT3055V***		N–Channel
	0.30	—	—	1.2	***MMFT2955E***		P–Channel
20	—	0.15	—	2	***MMFT2N02EL***[2]		N–Channel
30	0.1	—	—	5.2	***MMFT5P03HD***	3.1	P–Channel

(1) T_C = 25°C
(3) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.
(4) Available in tape and reel only — T1 suffix = 1000/reel, T3 suffix = 4000/reel.

Table 5. TSOP–6 — Case 318G–02

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device	P_D(1,2) (Watts) Max	V_{GS} (Volts) Min	Polarity
	10 V (Ω)	4.5 V (Ω)	2.7 V (Ω)					
30	0.065	0.095	—	4.2	***MGSF3454X***	0.15	1.0	N–Channel
					MGSF3454V	2.0		N–Channel
	0.1	0.135		3.5	***MGSF3455X***	0.5		P–Channel
					MGSF3455V	2.0		P–Channel
20	—	0.07	0.095	4.0	***MGSF3442X***	0.5	0.6	N–Channel
					MGSF3442V	2.0		N–Channel
		0.10	0.19	3.3	***MGSF3441X***	0.5	0.45	P–Channel
					MGSF3441V	2.0		P–Channel

(1) T_C = 25°C
(2) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.

Table 6. SOT–23 — Case 318–09

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device	P_D(1,2) (Watts) Max	V_{GS} (Volts) Min	Polarity
	10 V (Ω)	4.5 V (Ω)	2.7 V (Ω)					
60	5.0	—	—	0.2	***MMBF170LT1***	0.225	0.8	N–Channel
	7.5			0.5	***2N7002LT1***		1.0	N–Channel
50	0.9	6.0		0.1	***BSS84***			P–Channel
30	0.09	0.135		1.0	***MGSF1N03LT1***			N–Channel
20	0.075	0.085			***MGSF1N02LT1***			N–Channel
	0.75	1.0		0.1	***MMBF0201NLT1***			N–Channel
	0.16	0.21		0.75	***MGSF1P02ELT1***		0.7	P–Channel
	0.235	0.375			***MGSF1P02LT1***		1.0	P–Channel
	0.9	2.0		0.25	***MMBF0202PLT1***			P–Channel

(1) T_C = 25°C
(2) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.

Table 7. SC–70 / SOT–323 — Case 419–02

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device	P_D(1,2) (Watts) Max	V_{GS} (Volts) Min	Polarity
	10 V (Ω)	4.5 V (Ω)	2.7 V (Ω)					
20	0.75	1.0	—	0.3	***MMBF2201NT1***	0.15	1.0	N–Channel
	1.5	2.0	—		***MMBF2202PT1***			P–Channel

(1) T_C = 25°C
(2) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.

Table 8. DPAK — Case 369A–13 (TO–252)

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device[4]	P_D[1,3] (Watts) Max
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)			
DPAK — N-Channel						
800	12	—	—	1	***MTD1N80E***	1.75
600	8	—	—	1	***MTD1N60E***	
500	5	—	—	1	***MTD1N50E***	
	3.60	—	—	2	***MTD2N50E***	
400	3.50	—	—	2	***MTD2N40E***	
250	1.40	—	—	3	***MTD3N25E***	
	1	—	—	5	***MTD5N25E***	
200	1.5	—	—	3	***MTD3N20E***	
	1.20	—	—	4	***MTD4N20E***	
	0.70	—	—	6	***MTD6N20E***	
150	0.30	—	—	6	MTD6N15	
100	0.40	—	—	6	***MTD6N10E***	
	0.25	—	—	9	***MTD9N10E***	
	—	0.22	—	10	***MTD10N10EL***	
	0.11	—	—	14	***MTD14N10E***	
60	—	0.18	—	12	***MTD3055VL***	
	0.12	—	—	15	***MTD15N06V***	
	—	0.085	—	15	***MTD15N06VL***	
	0.18	—	—	12	***MTD12N06EZL***[5]	
	0.15	—	—	8	***MTD3055V***	
	0.045	—	—	20	***MTD20N06HD***	
	0.045	—	—	20	***MTD20N06HDL***	
	0.080	—	—	20	***MTD20N06V***	
30	0.010	—	—	10.8	***MTD3302***	
	0.035	—	—	20	***MTD20N03HDL***	
	0.022	—	—	20	***MTD1302***	
DPAK — P-Channel						
500	15.0	—	—	1	***MTD1P50E***	1.75
100	0.66	—	—	6	***MTD6P10E***	
60	0.45	—	—	5	***MTD5P06V***	
	0.20	—	—	12	***MTD2955V***	
	0.15	—	—	20	***MTD20P06HDL***	
30	0.099	—	—	19	***MTD20P03HDL***	

(1) T_C = 25°C
(3) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.
(4) Available in tape and reel — add T4 suffix to part number.
(5) ESD protected to 4 kV.

Table 9. D²PAK — Case 418B–03 (TO–264)

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device[4]	P_D[1,3] (Watts) Max
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)			
D²PAK — N-Channel						
1200	5.0	—	—	3	***MTB3N120E***	2.5
1000	9	—	—	1	***MTB1N100E***	
	4	—	—	3	***MTB3N100E***	
800	3	—	—	4	***MTB4N80E***	
600	1.20	—	—	6	***MTB6N60E***	
	2.2	—	—	3	***MTB3N60E***	
	4.16	—	—	2	***MTB2N60E***	
500	0.80	—	—	8	***MTB8N50E***	
400	3.5	—	—	2	***MTB2N40E***	
	0.55	—	—	10	***MTB10N40E***	
250	0.50	—	—	9	***MTB9N25E***	
	0.25	—	—	16	***MTB16N25E***	
200	0.16	—	—	20	***MTB20N20E***	
150	0.07	—	—	29	***MTB29N15E***	
100	0.060	—	—	33	***MTB33N10E***	
100	0.04	—	—	40	***MTB40N10E***	
60	0.12	—	—	15	***MTB15N06V***	
	—	0.05	—	30	***MTB30N06VL***	
	—	0.026	—	35	***MTB35N06ZL***	
	0.04	—	—	32	***MTB36N06V***	
	—	0.032	—	42	***MTB50N06VL***	
	0.028	—	—	42	***MTB50N06V***	
	—	0.025	—	52	***MTB52N06VL***	
	0.022	—	—	52	***MTB52N06V***	
	0.018	—	—	55	***MTB55N06Z***	
	0.014	—	—	60	***MTB60N06HD***	
	0.01	—	—	75	***MTB75N06HD***	
50	0.0095	—	—	75	***MTB75N05HD***	
	—	0.014	—	60	***MTB60N05HDL***	
30	0.008	—	—	75	***MTB1306***	
25	—	0.009	—	75	***MTB75N03HDL***	
D²PAK — P-Channel						
500	6	—	—	2	***MTB2P50E***	2.5
60	0.12	—	—	23	***MTB23P06V***	
	0.08	—	—	30	***MTB30P06V***	
30	—	0.025	—	50	***MTB50P03HDL***	

(1) T_C = 25°C
(3) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.
(4) Available in tape and reel — add T4 suffix to part number.

Table 10. D^{3}PAK — Case 433–01 (TO–268)

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device[2]	P_D[1] (Watts) Max
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)			
D^{3}PAK — N-Channel						
1000	1.50	—	—	6	***MTV6N100E***	178
	1.30	—	—	10	***MTV10N100E***	250
500	0.320	—	—	16	***MTV16N50E***	250
	0.240	—	—	20	***MTV20N50E***	250
	0.200	—	—	25	***MTV25N50E***	250
250	0.080	—	—	32	***MTV32N25E***	250
200	1.50	—	—	32	***MTV32N20E***	180

(1) T_C = 25°C
(2) Available in tape and reel — add T4 suffix to part number.

Table 11. TO-220AB — Case 221A–09

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device	P_D[1] (Watts) Max
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)			
TO-220AB — N-Channel						
1200	5.0	—	—	3	***MTP3N120E***	125
1000	9	—	—	1	***MTP1N100E***	75
	4.0	—	—	3	***MTP3N100E***	125
800	3	—	—	4	***MTP4N80E***	
600	8	—	—	1	***MTP1N60E***	50
	3.80	—	—	2	***MTP2N60E***	
	2.20	—	—	3	***MTP3N60E***	75
	1.20	—	—	6	***MTP6N60E***	125
500	5	—	—	1	***MTP1N50E***	50
	3.60	—	—	2	***MTP2N50E***	75
	3	—	—	3	***MTP3N50E***	50
	1.50	—	—	4	***MTP4N50E***	75
	0.80	—	—	8	***MTP8N50E***	125
400	3.50	—	—	2	***MTP2N40E***	50
	1.80	—	—	4	***MTP4N40E***	50
	1	—	—	5	***MTP5N40E***	75
	0.55	—	—	10	***MTP10N40E***	125
250	1.4	—	—	3	***MTP3N25E***	40
	0.5	—	—	9	***MTP9N25E***	75
	0.25	—	—	16	***MTP16N25E***	125
200	0.70	—	—	7	***MTP7N20E***	75
	0.16	—	—	20	***MTP20N20E***	125
150	0.07	—	—	29	***MTP29N15E***	125
100	0.25	—	—	10	***MTP10N10E***	75
	—	0.22	—	10	***MTP10N10EL***	40
	0.11	—	—	14	***IRF530***	78
	0.16	—	—	12	***MTP12N10E***	75
	0.06	—	—	27	***IRF540***	145
	0.070	—	—	27	***MTP27N10E***	125
	0.060	—	—	33	***MTP33N10E***	150
	0.04	—	—	40	***MTP40N10E***	169

(1) T_C = 25°C

Table 11. TO-220AB — Case 221A–09 (continued)

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS} 10 V (mΩ)	$R_{DS(on)}$ @ V_{GS} 4.5 V (mΩ)	$R_{DS(on)}$ @ V_{GS} 2.7 V (mΩ)	I_D (cont) Amps	Device	P_D(1) (Watts) Max
TO-220AB — N-Channel (continued)						
60	—	0.18	—	12	***MTP3055VL***	48
	0.15	—	—	12	***MTP3055V***	
	0.12	—	—	15	***MTP15N06V***	60
	—	0.085	—	15	***MTP15N06VL***	
	0.08	—	—	20	***MTP20N06V***	
	—	0.05	—	30	***MTP30N06VL***	90
	0.04	—	—	32	***MTP36N06V***	
	—	0.032	—	42	***MTP50N06VL***	150
	0.028	—	—	42	***MTP50N06V***	
	0.022	—	—	52	***MTP52N06V***	186
	—	0.025	—	52	***MTP52N06VL***	188
	0.014	—	—	60	***MTP60N06HD***	150
	0.01	—	—	75	***MTP75N06HD***	
50	—	0.10	—	15	***MTP15N05EL***	75
	0.0095	—	—	75	***MTP75N05HD***	150
40	0.006	—	—	75	***MTP3402***	150
30	0.008	—	—	75	***MTP1306***	150
	0.015	—	—	52	***MTP1304***	120
	0.022	—	—	42	***MTP1302***	75
25	—	0.009	—	75	***MTP75N03HDL***	150
TO-220AB — P-Channel						
500	6	—	—	2	***MTP2P50E***	75
200	1	—	—	6	***MTP6P20E***	
100	0.30	—	—	12	***MTP12P10***	88
60	0.45	—	—	5	***MTP5P06V***	40
	0.20	—	—	12	***MTP2955V***	60
	0.12	—	—	23	***MTP23P06V***	125
	0.08	—	—	30	***MTP30P06V***	125
30	—	0.025	—	50	***MTP50P03HDL***	150

(1) T_C = 25°C

Table 12. TO-247 (Isolated Mounting Hole) — Case 340K–01

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS} 10 V (mΩ)	$R_{DS(on)}$ @ V_{GS} 4.5 V (mΩ)	$R_{DS(on)}$ @ V_{GS} 2.7 V (mΩ)	I_D (cont) Amps	Device	P_D(1) (Watts) Max
TO-247 — N-Channel						
1000	1.50	—	—	6	***MTW6N100E***	180
	1.30	—	—	10	***MTW10N100E***	250
800	1	—	—	7	***MTW7N80E***	180
600	0.50	—	—	8	***MTW8N60E***	180
500	0.40	—	—	14	***MTW14N50E***	180
	0.24	—	—	20	***MTW20N50E***	250
400	0.24	—	—	16	***MTW16N40E***	180
	0.16	—	—	24	***MTW24N40E***	250
250	0.10	—	—	32	***MTW32N25E***	250
200	0.075	—	—	32	***MTW32N20E***	180
150	0.065	—	—	35	***MTW35N15E***	180
100	0.035	—	—	45	***MTW45N10E***	180

(1) T_C = 25°C

Table 13. TO-264 — Case 340G–02

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}(2)			I_D (cont) Amps	Device	P_D(1) (Watts) Max
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)			
TO-264 — N-Channel						
1000	0.80	—	—	14	***MTY14N100E***	300
800	0.50	—	—	16	***MTY16N80E***	
600	0.21	—	—	25	***MTY25N60E***	
500	0.24	—	—	20	***MTY20N50E***	
	0.14	—	—	30	***MTY30N50E***	
200	0.028	—	—	55	***MTY55N20E***	
100	0.01	—	—	100	***MTY100N10E***	

(1) T_C = 25°C
(2) V_{GS} = 10 V unless otherwise noted.

Table 14. Current Limit MOSFETs — SMARTDISCRETES™

$V_{(BR)DSS}$ (Volts) Min	$R_{DS(on)}$ @ V_{GS}			I_D (cont) Amps	Device	P_D(1) (Watts) Max
	10 V (mΩ)	4.5 V (mΩ)	2.7 V (mΩ)			
60 Clamped Voltage	0.75	—	—	Current Limited	***MLP1N06CL***	40
62 Clamped Voltage	0.4	—	—	Current Limited	MLP2N06CL	40
62 Clamped Voltage	0.4	—	—	Current Limited	MLD2N06CL	40

(1) T_C = 25°C
(2) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.
(3) Available in tape and reel — add T4 suffix to part number.

IGBT's

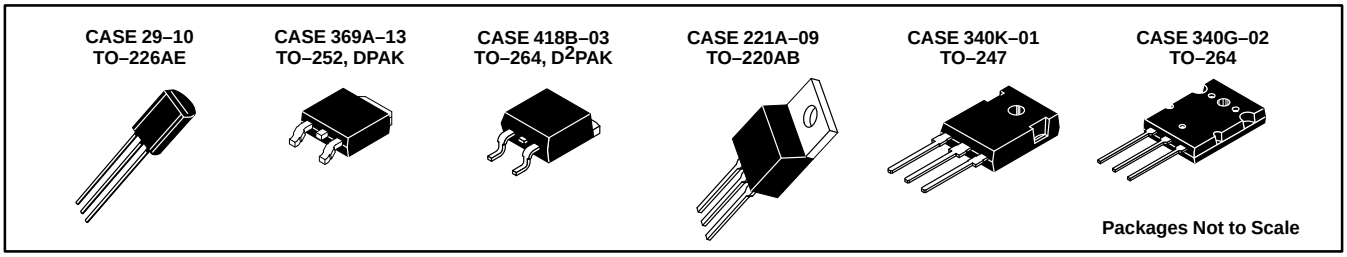


Table 15. Ignition IGBTs — SMARTDISCRETES™

BV_{CES} (Volts) Clamped	$V_{CE(on)}$ @ 10 A	Device	P_D(1) (Watts) Max	Package
140 V	1.8	***MGP20N14CL***	150	TO–220AB
350 V		***MGP20N35CL***	150	TO–220AB
400 V		***MGP20N40CL***	150	TO–220AB
		MGB20N40CL	2.5(2,3)	D2PAK

(1) T_C = 25°C
(2) Power rating when mounted on an FR-4 glass epoxy printed circuit board with the minimum recommended footprint.
(3) Available in tape and reel — add T4 suffix to part number.

Table 16. TO–220AB — Short Circuit Capability Rated

$V_{(BR)CES}$ (V)	Device	I_C @ 90°C (A)	$V_{CE(on)}$ @ I_C typ (1)		E_{off} typ (3) (μJ/A)	t_{sc} min (3) (μS)	P_D(1) (W)
			(V)	(A)			
600	***MGP4N60E***	4.0	2.0	3.0	60	10	62.5
	MGP4N60ED						
	MGP7N60E	7.0		5.0	70		81
	MGP7N60ED						
	MGP11N60E	11		8.0	60		96

(1) T_C = 25°C unless otherwise specified
(3) T_C = 125°C

Table 16. TO–220AB — Short Circuit Capability Rated (continued)

$V_{(BR)CES}$ (V)	Device	I_C @ 90°C (A)	$V_{CE(on)}$ @ I_C typ (1)		E_{off} typ (3) (μJ/A)	t_{sc} min (3) (μS)	P_D (1) (W)
			(V)	(A)			
	MGP11N60ED	11	2.0	8.0	60	10	96
	MGP14N60E	14		10	63		112
	MGP21N60E	21	2.1	20	65		142
	MGP15N60U	15	1.7	8.0	63	—	96
	MGP20N60U(4)	20		10			112

(1) T_C = 25°C unless otherwise specified
(3) T_C = 125°C
(4) Non short circuit capability

Table 17. TO–247 — Short Circuit Capability Rated

$V_{(BR)CES}$ (V)	Device	I_C @ 90°C (A)	$V_{CE(on)}$ @ I_C typ (1)		E_{off} typ (3) (μJ/A)	t_{sc} min (3) (μS)	P_D (1) (W)
			(V)	(A)			
600	***MGW14N60ED***	14	2.0	10	60	10	112
	MGW21N60ED	21	2.1	20	65		142
1200	***MGW12N120***	12	3.5	10	150		125
	MGW12N120D						
	MGW20N120	20	2.9	20	160		174

(1) T_C = 25°C unless otherwise specified
(3) T_C = 125°C

Table 18. TO–264 — Short Circuit Capability Rated

$V_{(BR)CES}$ (V)	Device	I_C @ 90°C (A)	$V_{CE(on)}$ @ I_C typ (1)		E_{off} typ (3) (μJ/A)	t_{sc} min (3) (μS)	P_D (1) (W)
			(V)	(A)			
1200	***MGY20N120D***	20	2.9	20	160	10	174
	MGY25N120	25	3.0	25	216		212
	MGY25N120D						

(1) T_C = 25°C unless otherwise specified
(3) T_C = 125°C

Table 19. TO–226AE Powerlux IGBT

$V_{(BR)CES}$ (V)	Device	I_C @ 90°C (A)	$V_{CE(on)}$ @ I_C typ (1)		E_{off} typ (3) (μJ/A)	t_{sc} min (3) (μS)	P_D (1) (W)
			(V)	(A)			
600	***MGS05N60D***	0.3	1.6	0.3	16.2	—	1.0
	MGS13002D						

(1) T_C = 25°C unless otherwise specified
(3) T_C = 125°C
D suffix on part number indicates free wheeling diode is copackaged with IGBT

DATA SHEET FAX VIA TOUCH-TONE PHONE

Data sheets that, up until now, were only available through TMOS Marketing are now available to you via your touch-tone phone through the Mfax system. With the Touch-Tone Fax System you can use the keypad on your touch-tone telephone to request faxes of over 30,000 Motorola documents. You can even send data sheets directly to your customers by simply entering *their* FAX numbers instead of yours.

Just dial 602–244–6609 and the simple instructions will guide you through the process of obtaining the data you desire. You may find it helpful to read through the process, which is listed below, prior to calling the first time.

INSTRUCTIONS

You will be asked to enter various pieces of information. To enter phone numbers, fax numbers, or hot document numbers simply enter numbers from your touch-tone keypad followed by the pound sign. For example, to enter a fax number, you might enter 6025551212#. (Numeric Input)

To enter combinations of letters and numbers (such as a part number, your first initial, your last name or company name), you must use sequences of two-digit codes to represent all of the letters and numbers. The telephone keypad groups three letters on each key. Numbers are prefixed with a “0”. The number “7” would be entered as 07.

Example of Text Input:

The part number MC6530, would be translated as follows:

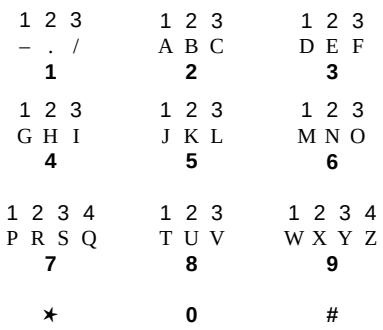
Text to be entered:	**M**	**C**	**6**	**5**	**3**	**0**
Two-digit codes:	61	23	06	05	03	00

When prompted for a part number, you would enter 61 23 06 05 03 00 #

“Q” is the fourth letter on the “7” key, “Z” is the fourth letter on the “9” key, and special characters “–”, “ .” and “/” are on the “1” key.

We suggest that you translate and write out the required information before starting your call. Then simply enter the pre-translated information.

NOTE: The system will repeat each letter as you enter two-digit codes. Should you make an error, you can reject the entire entry and start over when asked to verify. Entering an “✶” will provide you with verbal instructions on entering letters and numbers. During this help information, you may press any key to skip the remaining message and proceed with ordering your fax.



Should you encounter any problems with this system please contact the system administrator at **602-244-6591**.

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