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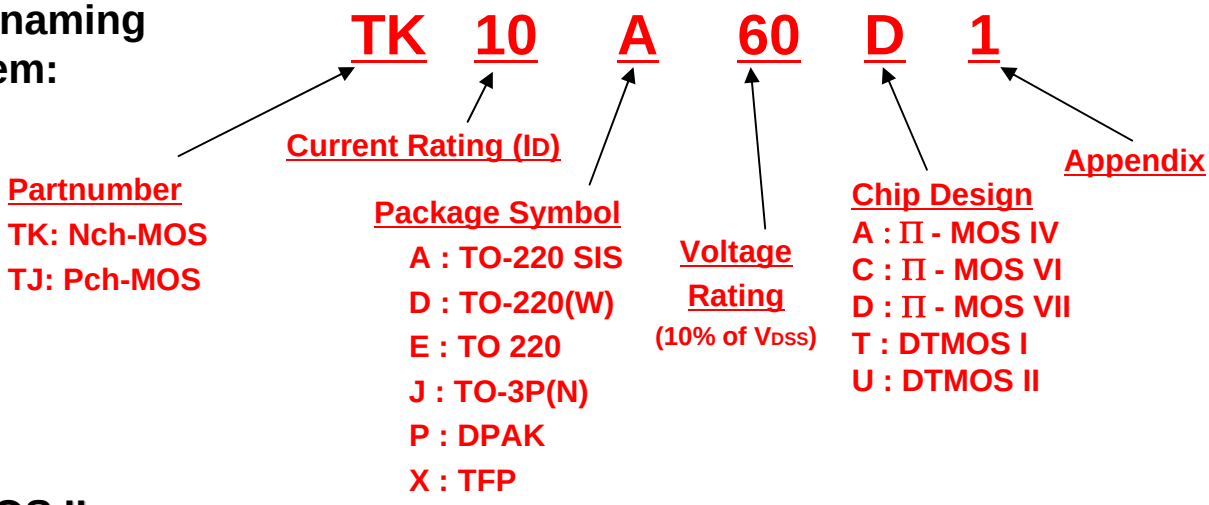
Leading Innovation

# Toshiba HV Mosfets

## Key product families:

DTMOS : Super Junction style MOSFET -> lower $R_{DS(on)}$ & Qg
Π-MOS VII : Standard MOSFET -> with low Qg and capacitance

## New naming system:




## DTMOS II

### the way to maximize efficiency, whilst minimizing package size...

Characteristics

$V_{DSS}$: 600V & 650V, $I_D$=12~50A, $R_{DS(on)}$ =0.065~0.4Ohm
Packages: pls see opposite page

Features

lowest Qg* $R_{DS(on)}$ at market => high efficiency + simple to drive
low Ron by Super Junction style structure
low gate capacitance
guaranteed avalanche durability
high ruggedness concept

**Application: SMPS Main Switch & PFC, Lamp Ballast**

| $V_{DS}$ | Partnumber | Chip Design | $I_D$ | $R_{DS(on)}$ max/ Ohm | Qg | Packages | Status |
|---|---|---|---|---|---|---|---|
| 600V | TK50J60U | DTMOS II | 50A | 0.065 | 70nC | TO-3P(N) | MP |
| 600V | TK40J60U | DTMOS II | 40A | 0.08 | 55nC | TO-3P(N) | MP |
| 600V | TK20J60U | DTMOS II | 20A | 0.19 | 27nC | TO-3P(N) | MP |
| 600V | TK20A60U | DTMOS II | 20A | 0.19 | 27nC | TO220SIS | MP |
| 600V | TK20E60U | DTMOS II | 20A | 0.19 | 27nC | TO220 | MP Q4'10 |
| 600V | TK20X60U | DTMOS II | 20A | 0.19 | 27nC | TFP (SMD) | MP |
| 600V | TK15J60U | DTMOS II | 15A | 0.3 | 17nC | TO-3P(N) | MP |
| 600V | TK15A60U | DTMOS II | 15A | 0.3 | 17nC | TO220SIS | MP |
| 600V | TK15E60U | DTMOS II | 15A | 0,3 | 17nC | TO220 | MP Q4'10 |
| 600V | TK15X60U | DTMOS II | 15A | 0.3 | 17nC | TFP (SMD) | MP |
| 600V | TK12J60U | DTMOS II | 12A | 0.4 | 14nC | TO-3P(N) | MP |
| 600V | TK12A60U | DTMOS II | 12A | 0.4 | 14nC | TO220SIS | MP |
| 600V | TK12E60U | DTMOS II | 12A | 0.4 | 14nC | TO220 | MP Q4'10 |
| 600V | TK12X60U | DTMOS II | 12A | 0.4 | 14nC | TFP (SMD) | MP |
| 650V | TK13A65U | DTMOS II | 13A | 0.38 | 17nC | TO220SIS | MP |
| 650V | TK17A65U | DTMOS II | 17A | 0.26 | 27nC | TO220SIS | MP |

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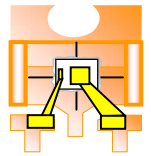
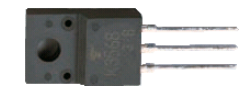
## π -MOS VII Standard Technology: 500~650V Class

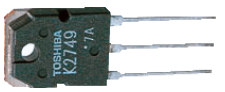
**Features:**
- fine split of $V_{DSS}$ and $R_{DS(on)}$ available
- very low Qg and capacitance values -> simple to drive
- high ruggedness (proved by 100% production test)
- latest process = excellent cost perfomance ratio
- TO220SIS & TO220(W) with advanced copper connector



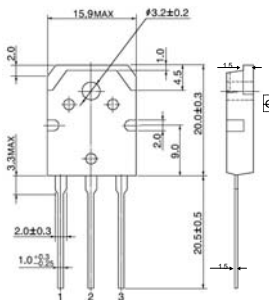
| $V_{DSS}$(V) | Product Name | $I_D$(A) | $R_{DS(ON)}$ max | Predecessor | Package |
|---|---|---|---|---|---|
| 500 | TK4P50D | 4 | 2.0 | - | DPAK |
| | TK5P50D | 5 | 1.5 | 2SK4103 | DPAK |
| | TK5A50D | 5 | 1.5 | 2SK3563 | TO-220 SIS |
| | TK7P50D | 7 | 1.22 | - | DPAK |
| | TK8A50DA | 7.5 | 1.0 | - | TO-220 SIS |
| | TK8A50D | 8 | 0.85 | 2SK3561 | TO-220 SIS |
| | TK10A50D | 10 | 0.72 | - | TO-220 SIS |
| | TK12A50D | 12 | 0.52 | 2SK3568 | TO-220 SIS |
| | TK13A50DA | 12.5 | 0.47 | - | TO-220 SIS |
| | TK13A50D | 13 | 0.4 | 2SK4012 | TO-220 SIS |
| | TK15J50D | 15 | | 2SK4107 | TO-3P(N) |
| | TK15A50D | 15 | 0.3 | 2SK3934 | TO-220 SIS |
| | TK20J50D | 20 | | 2SK4108 | TO-3P(N) |
| 525 | TK5P53D | 5 | 1.5 | - | DPAK |
| | TK6P53D | 6 | 1.3 | - | DPAK |
| 550 | TK5A55D | 5 | 1.7 | | TO-220SIS |
| | TK6A55DA | 5.5 | 1.48 | - | TO-220SIS |
| | TK8A55DA | 7.5 | 1.07 | - | TO-220SIS |
| | TK9A55DA | 8.5 | 0.86 | - | TO-220SIS |
| | TK12A55D | 12 | 0.57 | - | TO-220SIS |
| | TK12J55D | 12 | | - | TO-3P(N) |
| | TK16J55D | 16 | 0.37 | | TO-3P(N) |
| 600 | TK2P60D | 2 | 4.3 | - | new PW-Mold (DPAK style) |
| | TK3A60DA | 2.5 | 2.8 | - | TO-220 SIS |
| | TK4A60DA | 3.5 | 2.2 | 2SK3567 | TO-220 SIS |
| | TK4P60DA | 3.5 | 2.2 | - | DPAK |
| | TK4A60DB | 3.7 | 2 | - | TO-220 SIS |
| | TK4P60DB | 3.7 | 2 | - | DPAK |
| | TK4A60D | 4 | 1.7 | - | TO-220 SIS |
| | TK6A60D | 6 | 1.25 | 2SK3562 | TO-220 SIS |
| | TK8A60DA | 7.5 | 1.0 | 2SK3667 | TO-220 SIS |
| | TK10A60D | 10 | 0.75 | 2SK3569 | TO-220 SIS |
| | TK11A60D | 11 | 0.65 | - | TO-220 SIS |
| | TK12A60D | 12 | 0.55 | - | TO-220 SIS |
| | TK13A60D | 13 | 0.43 | 2SK3797 | TO-220 SIS |
| | TK15A60D | 15 | 0.37 | - | TO-220 SIS |
| 650 | TK5A65D | 5 | 1.43 | | TO-220 SIS |
| | TK6A65D | 6 | 1.11 | - | TO-220 SIS |
| | TK8A65D | 8 | 0.84 | | TO-220 SIS |

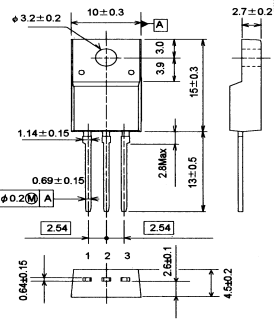


TO-220SIS



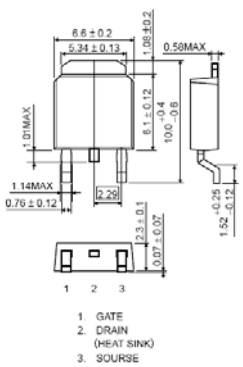
TO-3P(N)

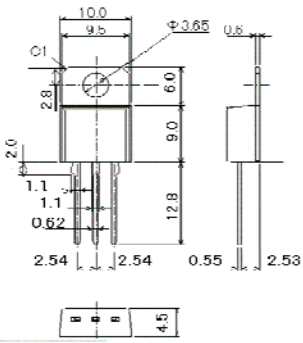


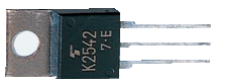


TO-220(W)

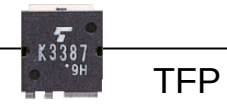
DPAK





TO-220AB



TFP