

Power MOSFET

(TO220 Package)

Dec, 2003

TOSHIBA Semiconductor Company
Discrete Semiconductor Division

TO-220SIS π -MOS IV/VI Series

New Package TO-220SIS(Smart ISolation)

<Features>

1) Short-sized Package

Mounted Package Height is Reduced by 2.8mm.

2) High Speed Switching

Reduction of Gate Charge by Optimizing Chip Design.

Turn-Off Time is 10% Faster Than Conventional TO-220NIS.

3) Pb Free Solder

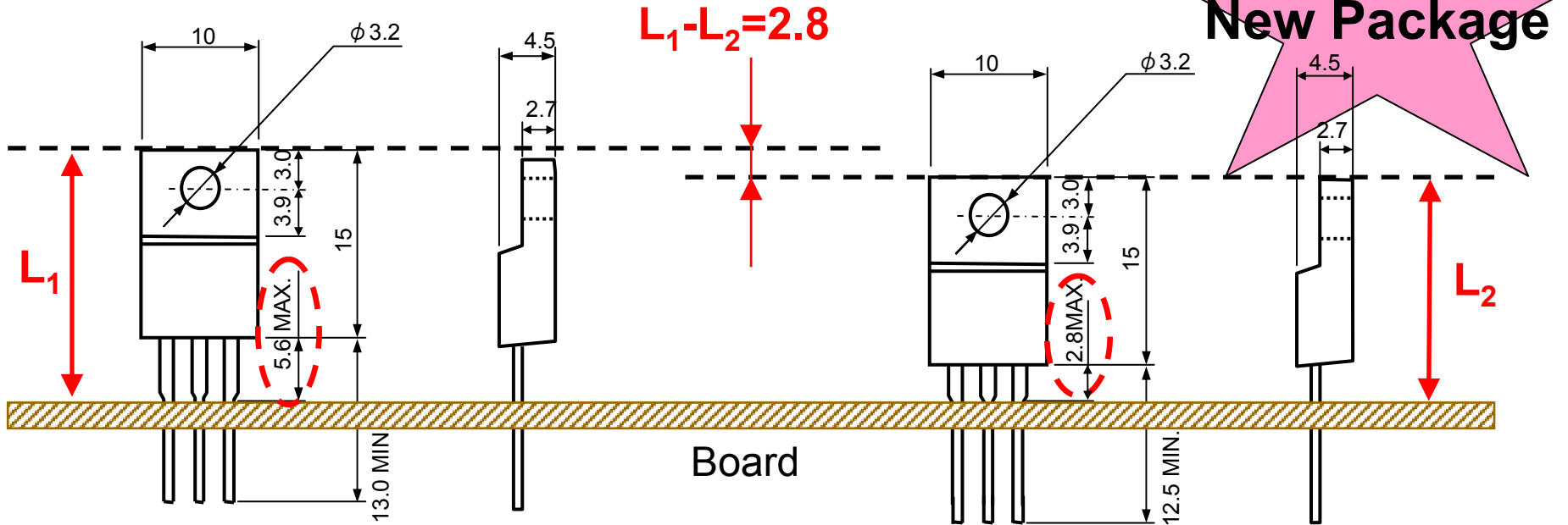
TO-220SIS package is harmless to the environment.

TO-220SIS Series : Form Comparison

**Conventional package
TO-220NIS**

TO-220SIS

New Package



Unit:mm

Short-sized Package

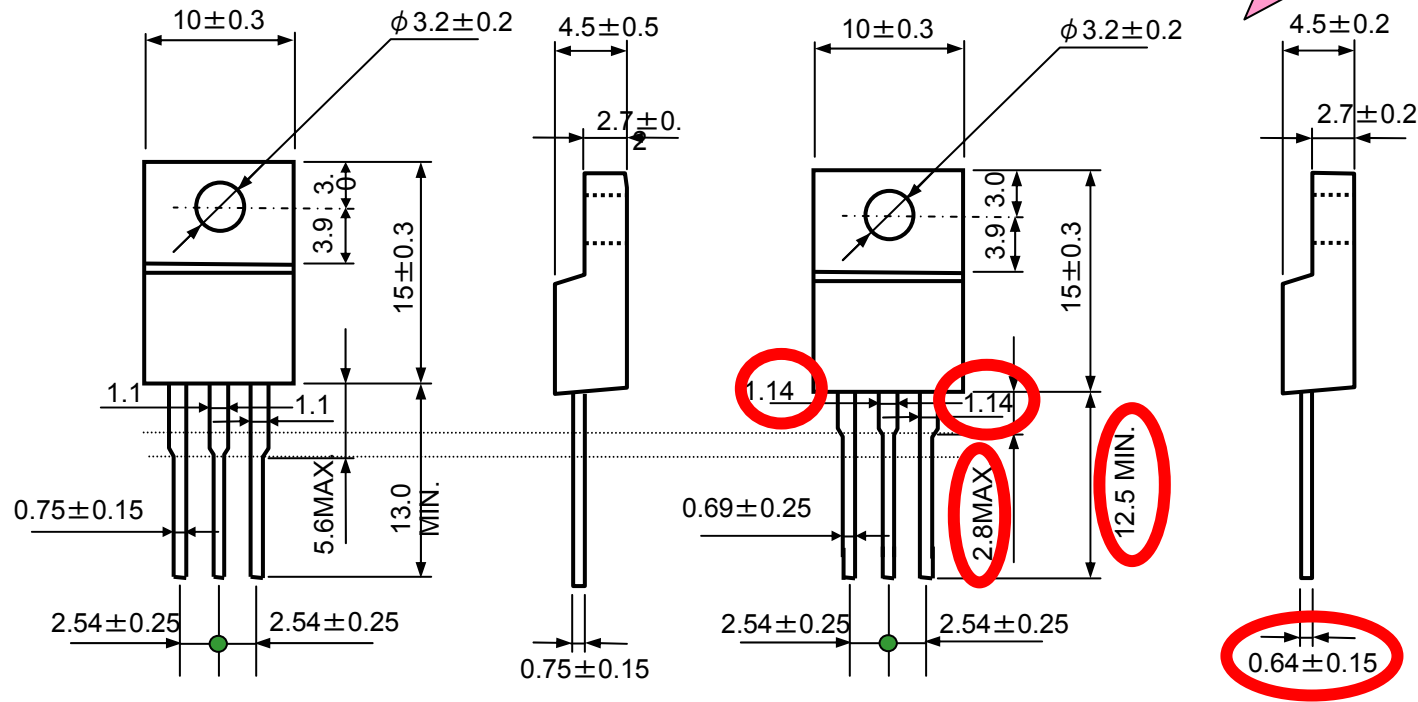
Mounted Package Height is Reduced by 2.8mm.

TO-220SIS Series Dimension Comparison



TO-220NIS

TO-220SIS

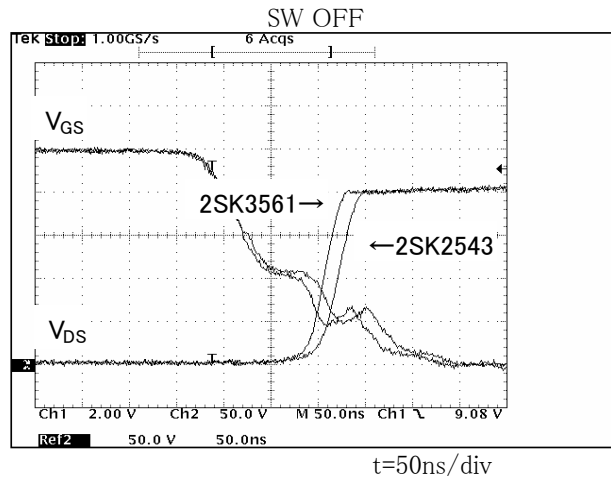


(Unit :mm)

TO-220SIS π -MOSVI Series

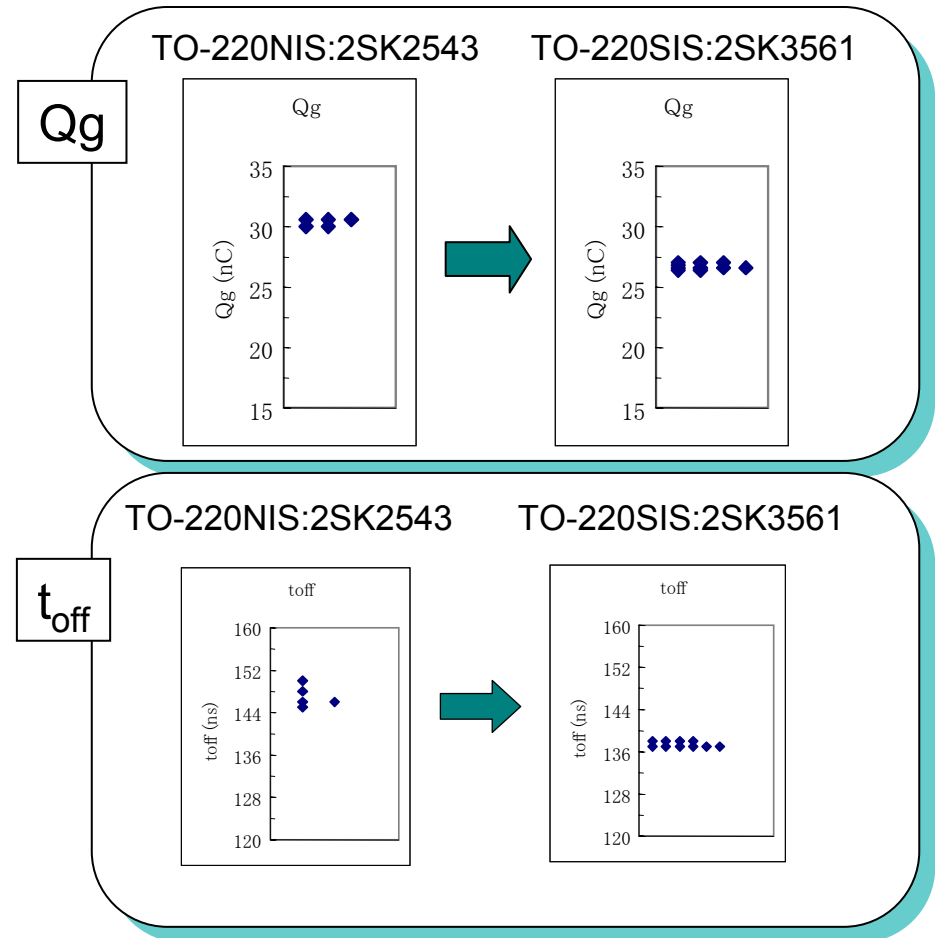
<Characteristics Comparison>

	TO-220NIS 2SK2543	TO-220SIS 2SK3561
$V_{DSS}(V)$	500V	500V
$I_D(A)$	8A	8A
$R_{DS(ON)}(\Omega)$	0.85 Ω	0.85 Ω
$Q_g(nC)$	30	28
$t_{off}(ns)$	147	137



t_{off} is 7% Faster by Reducing Q_g .

(Same Maximum Ratings in $V_{DSS}, I_D, R_{DS(ON)}$)



TO-220SIS Series Line Up

Part Number	Maximum Ratings		R _{DS(ON)} (Max)(Ω)	Sample Schedule	MP Schedule	Corresponding Part number
	V _{DSS} (V)	I _D (A)				
2SK3757#	450	2	2.45	OK		2SK3543
2SK3563	500	5	1.5	OK	OK	2SK2662
2SK3561	500	8	0.85	OK	OK	2SK2543
2SK3568	500	12	0.52	OK	OK	2SK2842
2SK3767	600	2	5	OK	OK	2SK3067
2SK3567	600	3.5	2.2	OK	OK	2SK2750
2SK3562	600	6	1.25	OK	OK	2SK2545
2SK3667	600	7.5	1.0	OK	OK	2SK2996
2SK3569	600	10	0.75	OK	OK	2SK2843
						-
2SK3566	900	2.5	6.4	OK	OK	2SK2718
2SK3564	900	3	4.3	OK	OK	2SK2700
						-
2SK3565	900	5	2.5	OK	OK	2SK2717
						-

#:Under Development

TO-220AB New series

Latest Design

π -MOS IV(900V)

π -MOS VI(500V/600V)

Feature

- >Low Qg characteristics
- >Improve 10% Switching characteristics
- >Avalanche capability guaranteed
- >Built-in protection zener diode between gate and source



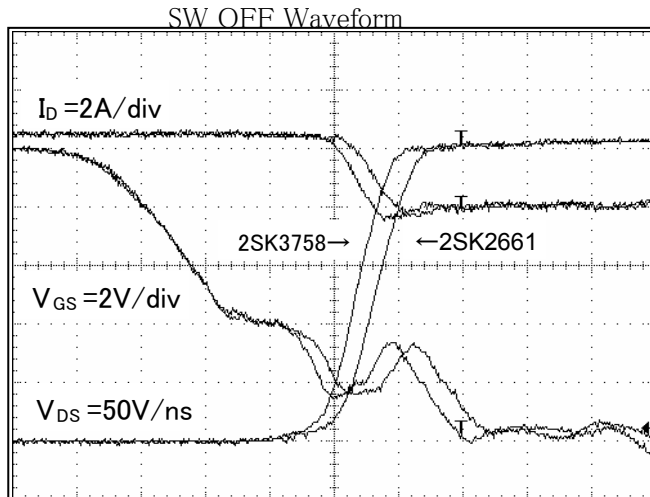
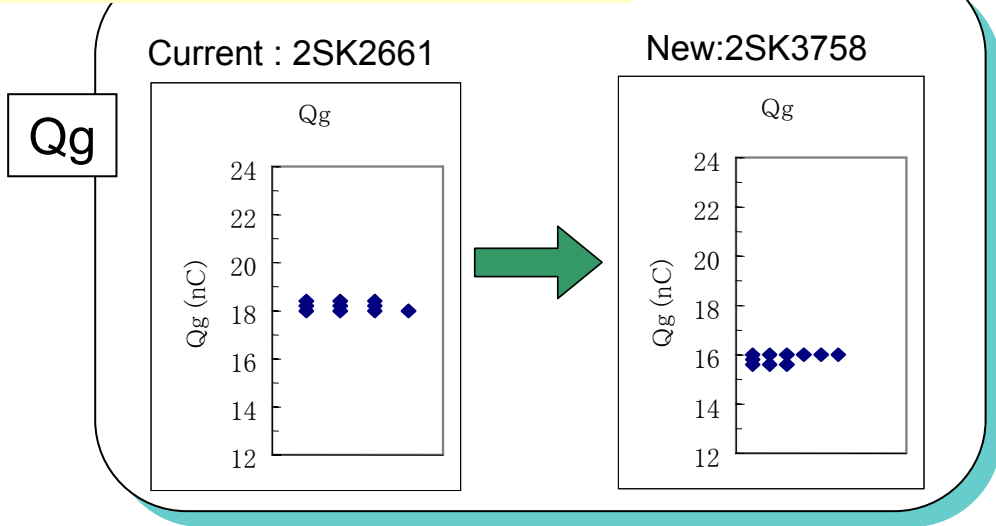
Line up

Part Number	Maximum Ratings		RDS(ON) (Max)(Ω)	Sample Schedule	M/P Schedule	Corresponding Part number
	V _{DSS} (V)	I _D (A)				
2SK3758	500	5	1.5	OK	OK	2SK2661
2SK3759	500	8	0.85	OK	OK	2SK2542
2SK3760	600	3.5	2.2	OK	OK	2SK3085
2SK3761	600	6	1.25	OK	OK	2SK2544
2SK3762	900	2.5	6.4	OK	OK	-
2SK3763	900	3	4.3	OK	OK	2SK2608

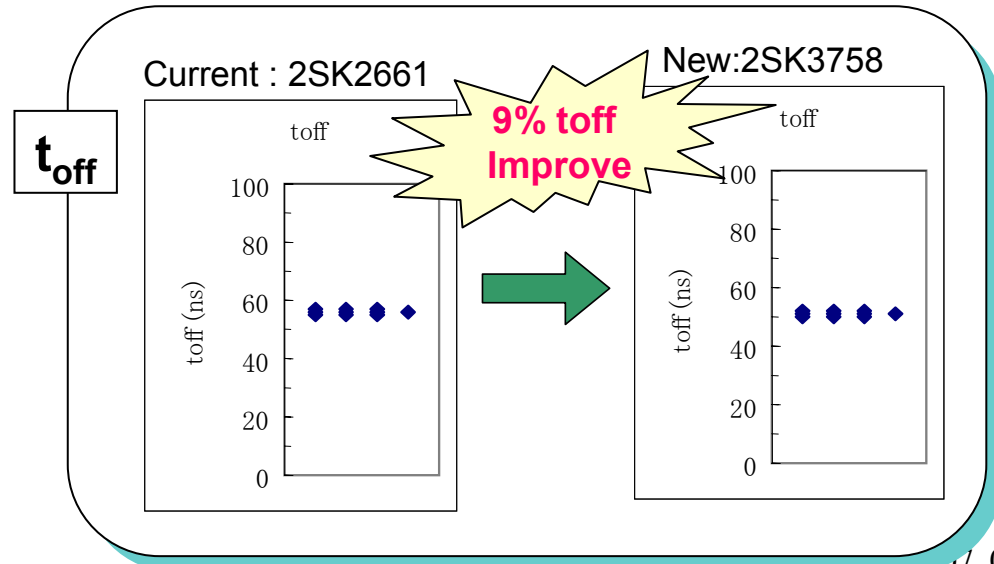
TO-220AB New series

Switching Performance Comparison, 500-600V series

Parts No	Current Parts	New
Item	No	2SK3758
$V_{DSS}(V)$	2SK2661	500V
$I_D(A)$	5A	5A
$R_{DS(ON)}(\Omega)$	1.5 (MAX)	1.5 (MAX)
Qg(nC)	17 (TYP)	16 (TYP)
toff(ns)	60 (TYP)	50 (TYP)



$t = 12.5ns/div$



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