

TOSHIBA TRANSISTOR
SILICON NPN TRANSISTOR

MPSA42, 43

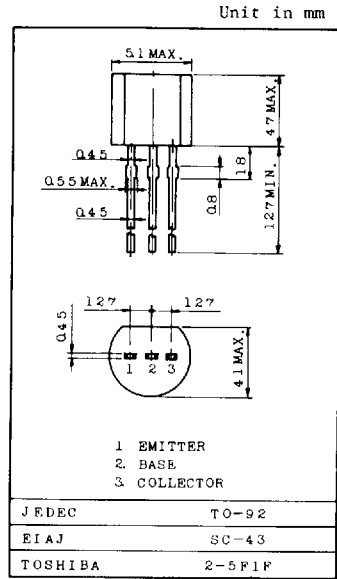
TOSHIBA (DISCRETE/OPTO)

T-29-21

FOR HIGH VOLTAGE CONTROL APPLICATION.

FLATURES:

- . High Voltage : $V_{CE0}=300V$ (MPSA42)
 $V_{CE0}=200V$ (MPSA43)
- . Low Saturation Voltage
 : $V_{CE(sat)}=0.5V$ (Max.) @ $I_C=20mA, I_B=2mA$
- . Low Collector Output Capacitance
 : $C_{ob}=3.0pF$ (Max.) (MPSA42)
 $4.0pF$ (Max.) (MPSA43) @ $V_{CB}=20V$
- . Complementary to MPSA92, MPSA93



MAXIMUM RATINGS ($T_a=25^{\circ}C$)

Weight : 0.21g

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	MPSA42	V_{CB0}	300	V
	MPSA43		200	
Collector-Emitter Voltage	MPSA42	V_{CE0}	300	V
	MPSA43		200	
Emitter-Base Voltage		V_{EB0}	6	V
Collector Current		I_C	500	mA
Base Current		I_B	30	mA
Collector Power Dissipation ($T_a=25^{\circ}C$) Derate Linearly $25^{\circ}C$		PC	625	mW
			5.0	mW/ $^{\circ}C$
Collector Power Dissipation ($T_c=25^{\circ}C$) Derate Linearly $25^{\circ}C$		PC	1.5	W
			12	mW/ $^{\circ}C$
Thermal Resistance (Junction to Ambient)		$R_{th(j-a)}$	200	$^{\circ}C/W$
Thermal Resistance (Junction to Case)		$R_{th(j-c)}$	83.3	$^{\circ}C/W$
Junction Temperature		T_j	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55~150	$^{\circ}C$

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	MPSA42	V(BR)CEO	I _C =1mA, I _B =0	300	-	-	V
	MPSA43			200	-	-	
Collector-Base Breakdown Voltage	MPSA42	V(BR)CBO	I _C =100μA, I _E =0	300	-	-	V
	MPSA43			200	-	-	
Emitter-Base Breakdown Voltage		V(BR)EBO	I _E =100μA, I _C =0	6	-	-	V
Collector Cut-off Current	MPSA42	I _{CBO}	V _{CB} =200V	-	-	0.1	μA
	MPSA43		V _{CB} =160V	-	-	0.1	
Emitter Cut-off Current	MPSA42	I _{EBO}	V _{EB} =6V	-	-	0.1	μA
	MPSA43		V _{EB} =4V	-	-	0.1	
DC Current Gain		h _{FE} (1)	V _{CE} =10V, I _C =1mA	25	-	-	
		h _{FE} (2)	V _{CE} =10V, I _C =10mA	40	-	-	
	MPSA42	h _{FE} (3)	V _{CE} =10V, I _C =30mA	40	-	-	
				MPSA43	40	-	
Collector-Emitter Saturation Voltage		V _{CE(sat)}	I _C =20mA, I _B =2mA	-	-	0.5	V
Base-Emitter Saturation Voltage		V _{BE(sat)}	I _C =20mA, I _B =2mA	-	-	0.9	V
Transition Frequency		f _T	V _{CE} =20V, I _C =10mA, f=100MHz	50	-	-	MHz
Collector Output Capacitance	MPSA42	C _{ob}	V _{CB} =20V, I _E =0 f=1MHz	-	-	3	pF
	MPSA43			-	-	4	