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OM SENI

MJD340T4G (NPN),
MJD350T4G (PNP)

High Voltage Power Transistors

DPAK for Surface Mount Applications

Designed for line operated audio output amplifier, switchmode power supply drivers and other switching applications.

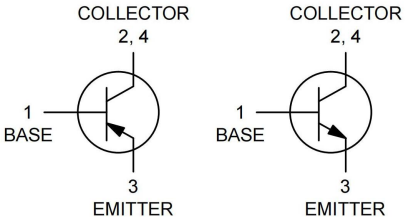
Features

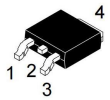
- Lead Formed for Surface Mount Applications in Plastic Sleeves (No Suffix)
- Electrically Similar to Popular MJE340 and MJE350
- Epoxy Meets UL 94 V−0 @ 0.125 in
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Collector−Emitter Voltage	V_{CEO}	300	Vdc
Collector−Base Voltage	V_{CB}	300	Vdc
Emitter−Base Voltage	V_{EB}	3	Vdc
Collector Current − Continuous	I_C	0.5	Adc
Collector Current − Peak	I_{CM}	0.75	Adc
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	 15 0.12	 W W/°C
Total Power Dissipation (Note 1) @ T_A = 25°C Derate above 25°C	P_D	 1.56 0.012	 W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +150	°C
ESD − Human Body Model MJD340T4G (NPN) MJD350T4G (PNP)	HBM	 3B 2	V
ESD − Machine Model MJD340T4G (NPN) MJD350T4G (PNP)	MM	 M4 M4	V

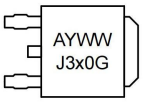
SILICON
POWER TRANSISTORS
0.5 AMPERE
300 VOLTS, 15 WATTS





DPAK
CASE 369C
STYLE 1

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
J3x0 = Device Code
x= 4 or 5
G = Pb−Free Package

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	8.33	°C/W
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	80	°C/W
Leading Temperature for Soldering Purpose	T_L	260	°C

2. These ratings are applicable when surface mounted on the minimum pad sizes recommended.

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Sustaining Voltage (Note 3) (I_C = 1 mA, I_B = 0)	$V_{CEO(sus)}$	300	–	V
Collector Cutoff Current (V_{CB} = 300 V, I_E = 0)	I_{CEO}	–	0.1	mA
Emitter Cutoff Current (V_{BE} = 3 V, I_C = 0)	I_{EBO}	–	0.1	mA
ON CHARACTERISTICS (Note 3)				
DC Current Gain (I_C = 50 mA, V_{CE} = 10 V)	h_{FE}	30	240	–
Collector−Emitter Saturation Voltage (I_C = 100 mA, I_B = 10 mA)	$V_{CE(sat)}$	–	1	V
Base−Emitter On Voltage (I_C = 1 A, V_{CE} = 10 V)	$V_{BE(on)}$	–	1.5	V
DYNAMIC CHARACTERISTICS				
Current Gain − Bandwidth Product (I_C = 50 mA, V_{CE} = 10 V, f = 10 MHz)	f_T	10	–	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

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TYPICAL CHARACTERISTICS

MJD340

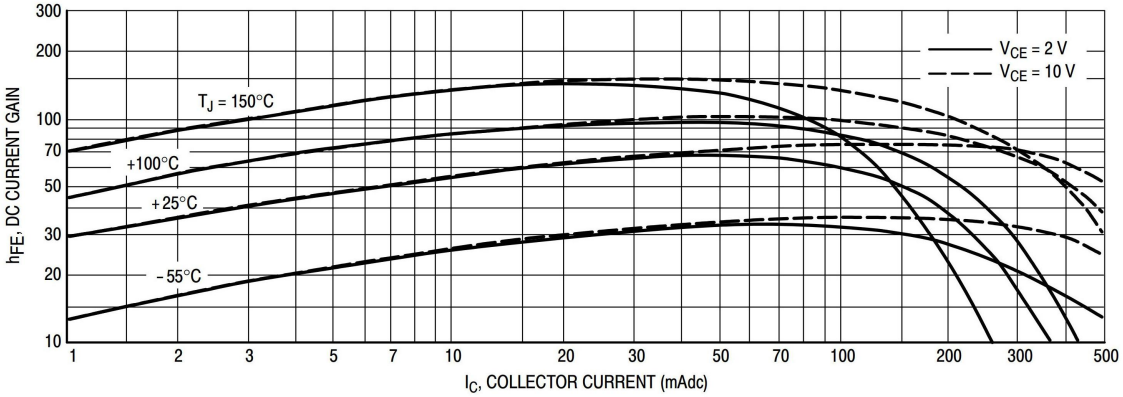

Figure 1. DC Current Gain

MJD340

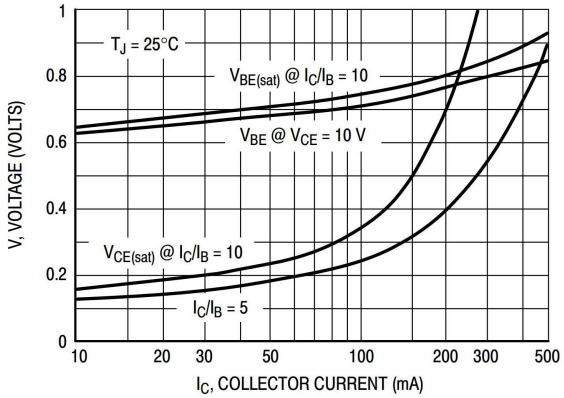

Figure 2. "On" Voltages

MJD350

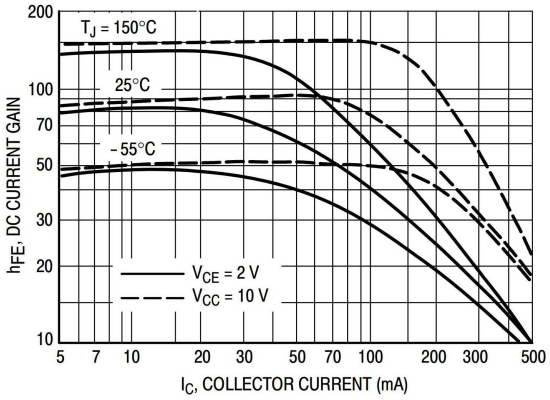

Figure 3. DC Current Gain

MJD350

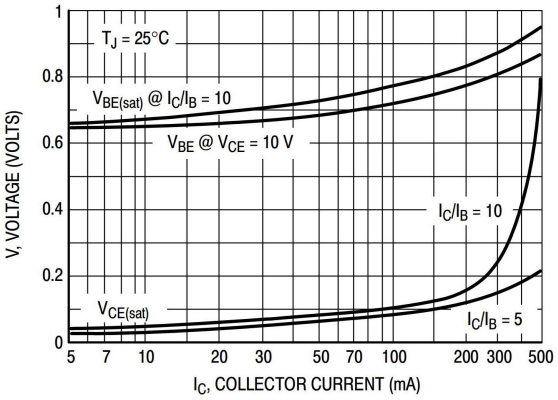

Figure 4. "On" Voltages

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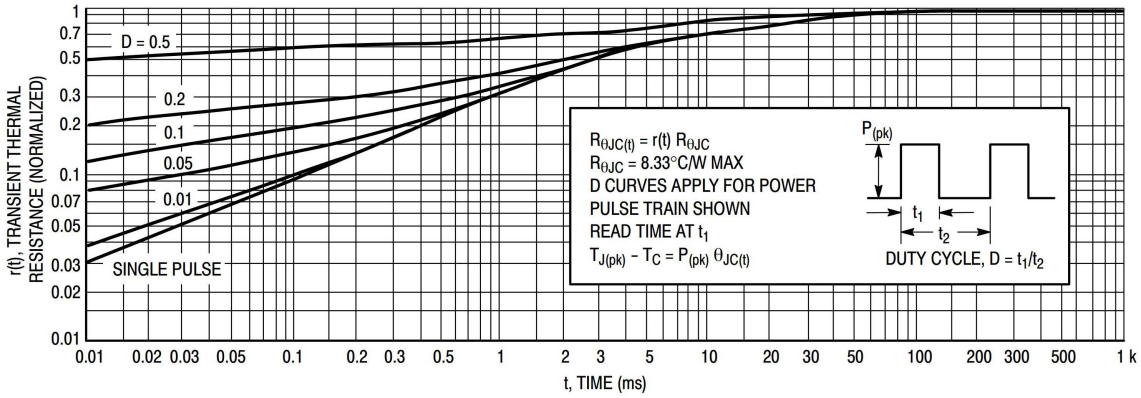

Figure 5. Thermal Response

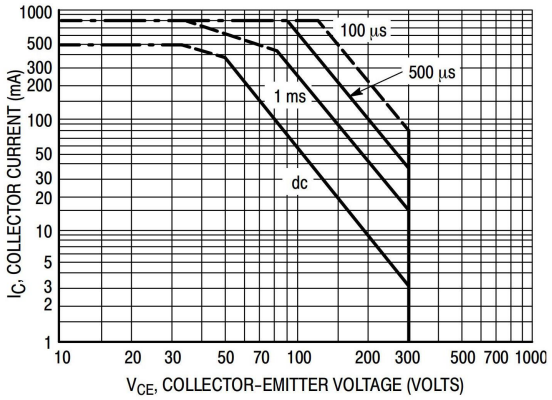

Figure 6. Active Region Safe Operating Area

There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 6 is based on $T_{J(pk)} = 150°C$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150°C$. $T_{J(pk)}$ may be calculated from the data in Figure 5. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

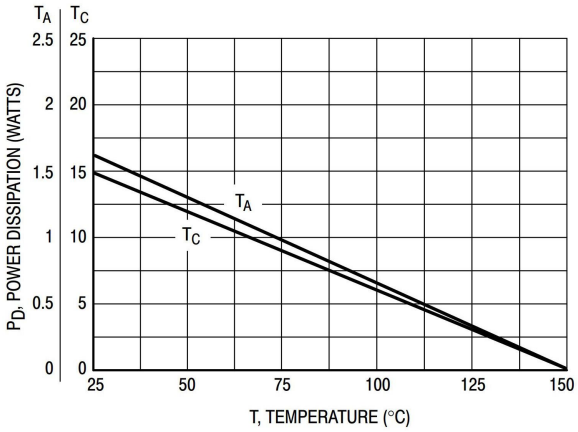

Figure 7. Power Derating

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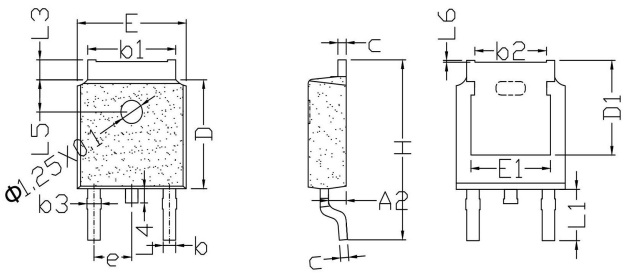
Ordering Information

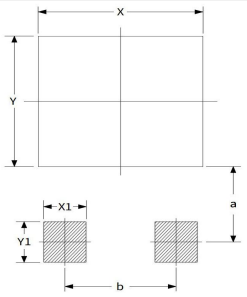
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
TO-252	R3	0.305	2500	5000	25000	13''

Package Outline Dimensions (TO-252)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A2	0.90	1.10	0.035	0.043
b	0.66	0.86	0.026	0.034
b1	5.10	5.46	0.201	0.215
b2	4.27	4.37	0.168	0.172
b3	0.78	0.90	0.031	0.035
c	0.45	0.55	0.018	0.022
D	5.90	6.30	0.232	0.248
D1	5.35 REF.		0.211REF.	
E	6.30	6.70	0.248	0.264
E1	4.83 REF.		0.190 REF.	
e	2.18	2.38	0.086	0.094
H	9.80	10.4	0.386	0.409
L1	2.70	3.10	0.106	0.122
L3	0.80	1.20	0.031	0.047
L4	0.60	1.00	0.024	0.039
L5	1.8 REF.		0.071 REF.	
L6	-	0.12	-	0.005

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
a	3.70	-	0.146	-
b	4.37	-	0.172	-
X	-	5.80	-	0.228
X1	-	1.20	-	0.047
Y	-	5.85	-	0.230
Y1	-	2.00	-	0.079