

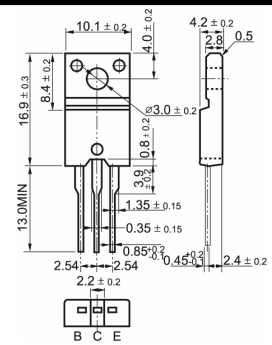
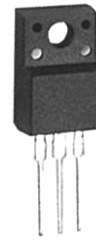


## 2SD1409

## SILICON NPN DARLINGTON TRANSISTOR

### GENERAL DESCRIPTION

Darlington transistor are designed for use as general purpose amplifiers, switching and motor control applications.



TO-220F

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CESM}$	Collector-emitter voltage peak value	$V_{BE} = 0V$	-	600	V
$V_{CEO}$	Collector-emitter voltage (open base)		-	400	V
$I_C$	Collector current (DC)		-	6	A
$I_{CM}$	Collector current peak value		-	12	A
$P_{tot}$	Total power dissipation	$T_{mb} \leq 25^\circ C$	-	25	W
$V_{CEsat}$	Collector-emitter saturation voltage	$I_C = 4.0A; I_B = 0.04A$	-	2.0	V
$I_{csat}$	Collector saturation current	$f=16KHZ$			A
$V_F$	Diode forward voltage	$I_F=3A$	2.5	5	V
$t_f$	Fall time	$I_C=4.0A, I_{B1}=-I_{B2}=0.04A, V_{CC}=100V$		6.0	$\mu s$

### LIMITING VALUES

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CESM}$	Collector-emitter voltage peak value	$V_{BE} = 0V$	-	600	V
$V_{CEO}$	Collector-emitter voltage (open base)		-	400	V
$I_C$	Collector current (DC)		-	6	A
$I_{CM}$	Collector current peak value		-	12	A
$I_B$	Base current (DC)		-	1	A
$I_{BM}$	Base current peak value		-	2	A
$P_{tot}$	Total power dissipation	$T_{mb} \leq 25^\circ C$	-	25	W
$T_{sto}$	Storage temperature		-55	150	$^\circ C$
$T_j$	Junction temperature		-	150	$^\circ C$

### ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$I_{CE}$	Collector cut-off current	$V_{EB}=0V, V_{CE}=V_{CESMmax}$		0.5	mA
$I_{CES}$		$V_{EB}=0V, V_{CE}=V_{CESMmax}$		3.0	mA
$V_{CEO_{sust}}$	Collector-emitter sustaining voltage	$T_j=125^\circ C$ $I_B=0A, I_C=100mA$ $L=25mH$			V
$V_{CEsat}$	Collector-emitter saturation voltages	$I_C = 4.0A; I_B = 0.04A$		2.0	V
$V_{BEsat}$	Base-emitter saturation voltage	$I_C = 4.0A; I_B = 0.04A$		1.5	V
$h_{FE}$	DC current gain	$I_C = 2A; V_{CE} = 5V$	600		
$V_F$	Diode forward voltage	$I_F=3A$	2.5	5.0	V
$f_T$	Transition frequency at $f = 1MHz$	$I_C=2A, V_{CE}=10V$	5		MHZ
$C_c$	Collector capacitance at $f = 1MHz$	$V_{CB} = 50V$		50	pF
$t_s$	Switching times(16KHz line deflecton circuit)	$I_C=4.0A, I_{B1}=-I_{B2}=0.04A, V_{CC}=100V$		10	$\mu s$
$t_f$	Turn-off storage time Turn-off fall time	$I_C=4.0A, I_{B1}=-I_{B2}=0.04A, V_{CC}=100V$		6.0	$\mu s$