

2SK2800

Silicon N Channel MOS FET
High Speed Power Switching

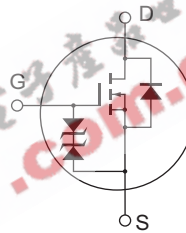
REJ03G1035-0900
(Previous: ADE-208-513G)
Rev.9.00
Sep 07, 2005

Features

- Low on-resistance
 $R_{DS(on)} = 15 \text{ m}\Omega$ typ.
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source

Outline

RENESAS Package code: PRSS0004AC-A
(Package name: TO-220AB)



1. Gate
2. Drain
(Flange)
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DS}	60	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	40	A
Drain peak current	I _{D(pulse)} ^{Note1}	160	A
Body-drain diode reverse drain current	I _{DR}	40	A
Avalanche current	I _{AP} ^{Note 3}	40	A
Avalanche energy	E _{AR} ^{Note 3}	137	mJ
Channel dissipation	P _{ch} ^{Note 2}	50	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10μs, duty cycle ≤ 1 %
 2. Value at Tc = 25°C
 3. Value at Tch = 25°C, Rg ≥ 50Ω

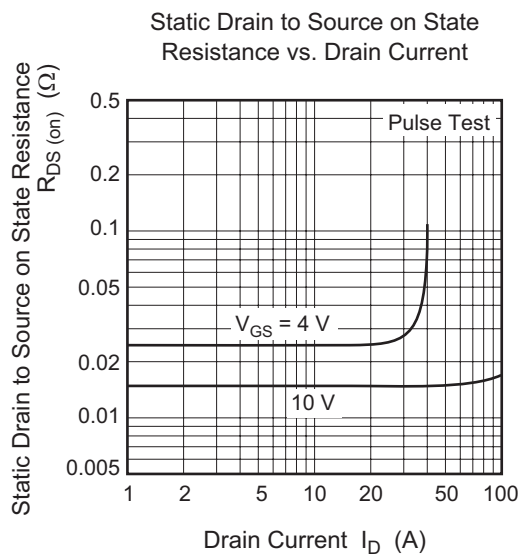
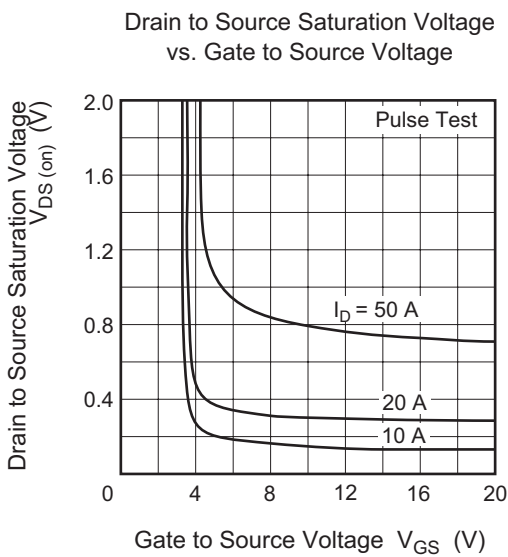
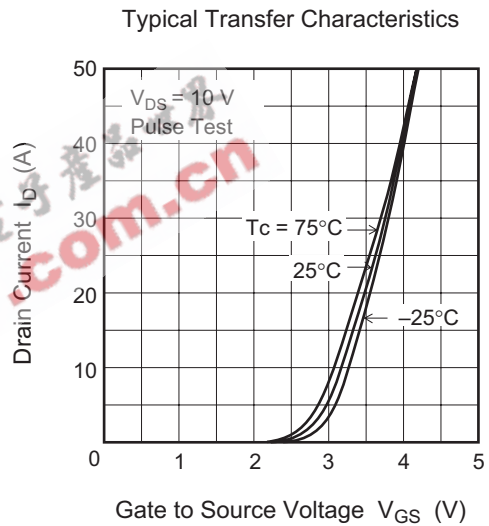
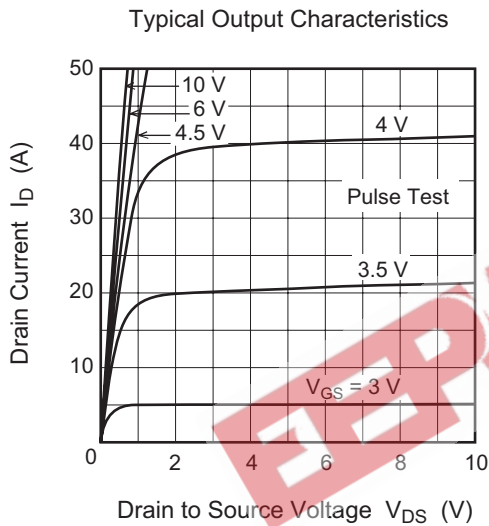
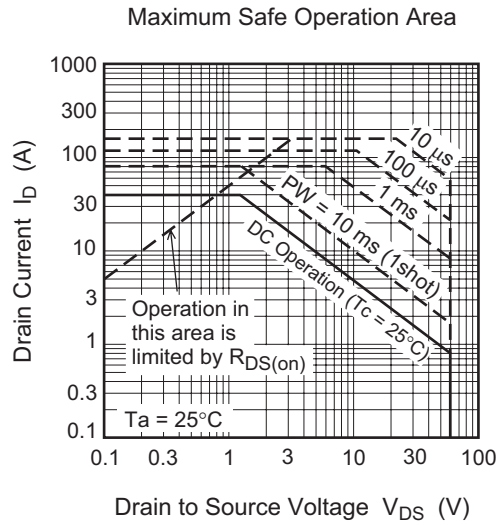
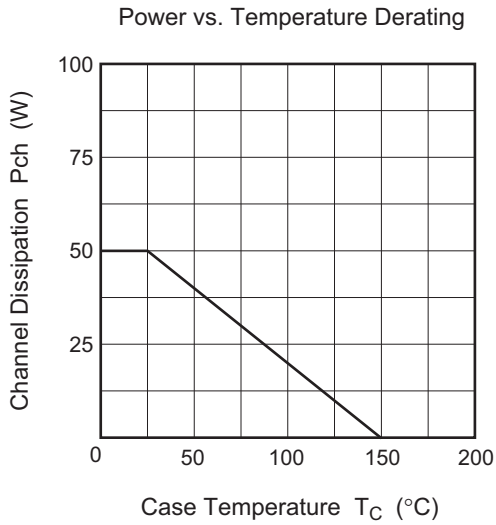
Electrical Characteristics

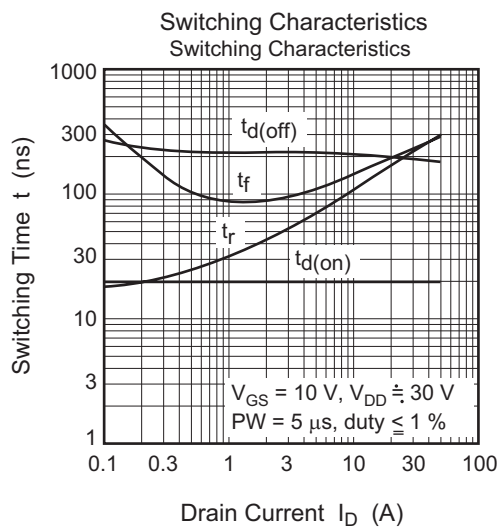
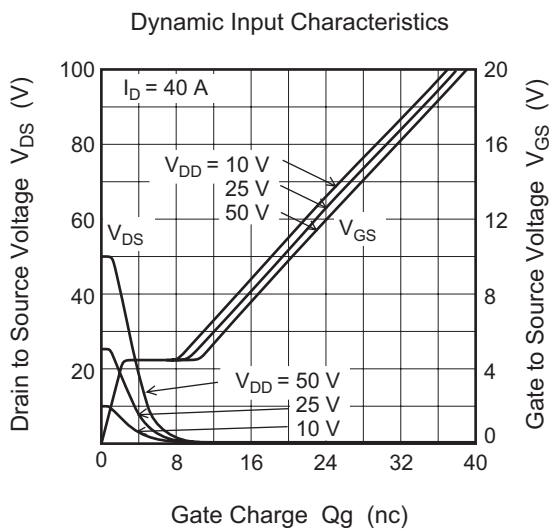
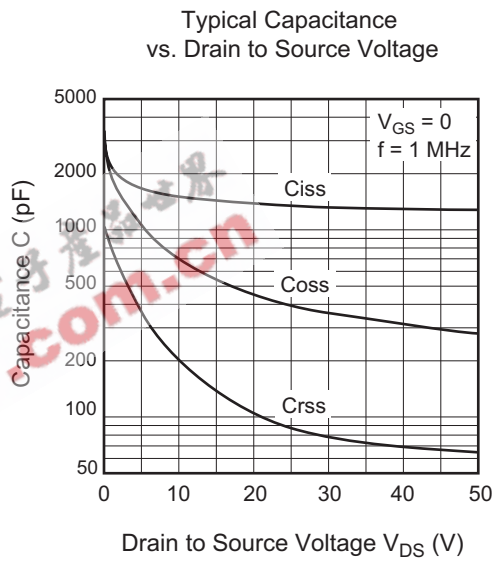
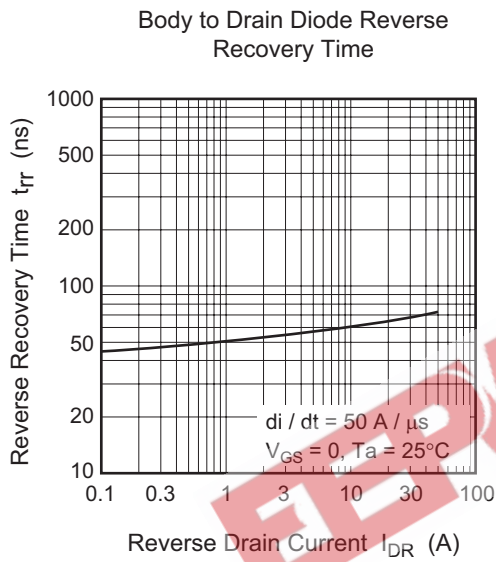
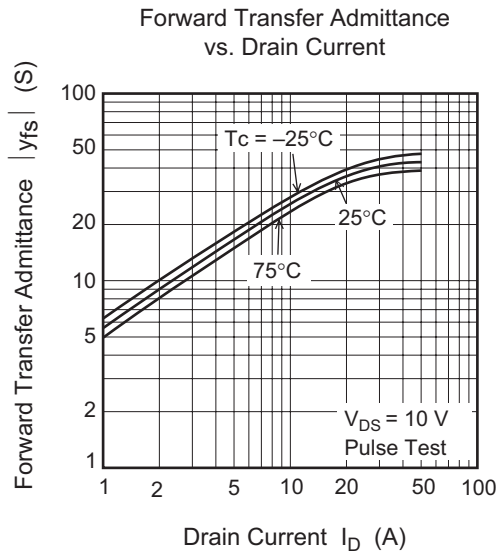
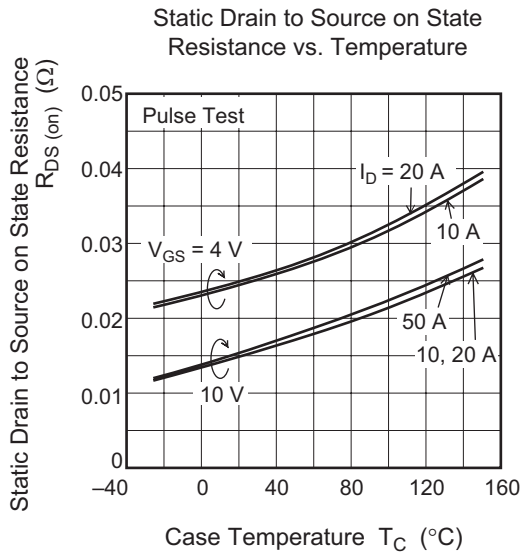
(Ta = 25°C)

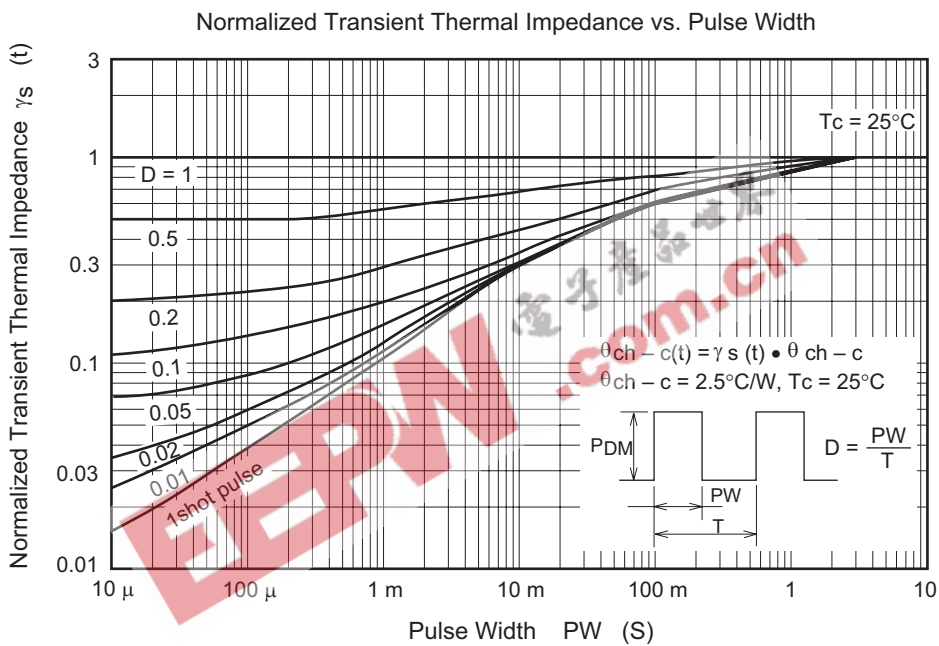
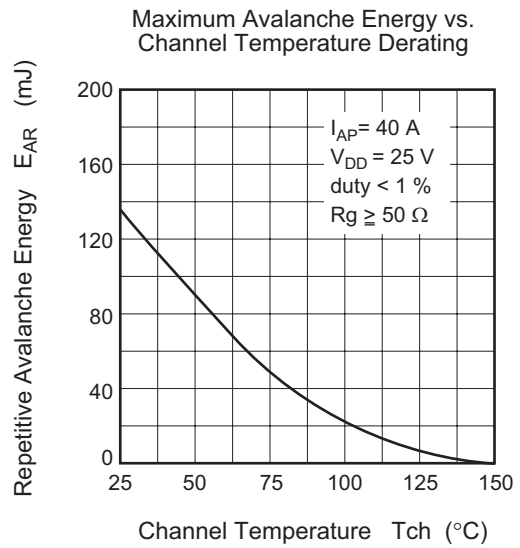
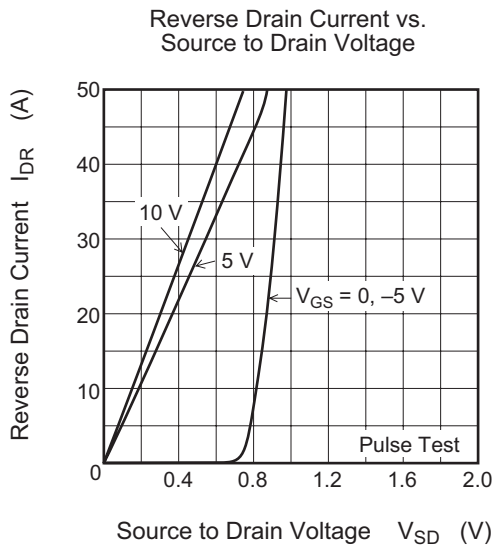
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	60	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 60 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.5	—	2.5	V	I _D = 1 mA, V _{DS} = 10V
Static drain to source on state resistance	R _{DS(on)}	—	15	20	mΩ	I _D = 20 A, V _{GS} = 10V ^{Note4}
	R _{DS(on)}	—	25	40	mΩ	I _D = 20 A, V _{GS} = 4 V ^{Note4}
Forward transfer admittance	y _{fs}	20	35	—	S	I _D = 20 A, V _{DS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	1500	—	pF	V _{DS} = 10 V, V _{GS} = 0,
Output capacitance	C _{oss}	—	720	—	pF	f = 1 MHz
Reverse transfer capacitance	C _{rss}	—	200	—	pF	
Turn-on delay time	t _{d(on)}	—	20	—	ns	I _D = 20 A, R _L = 1.5 Ω, V _{GS} = 10 V
Rise time	t _r	—	180	—	ns	
Turn-off delay time	t _{d(off)}	—	200	—	ns	
Fall time	t _f	—	200	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.95	—	V	I _F = 40 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	70	—	V	I _F = 40 A, V _{GS} = 0 di _F / dt = 50 A/μs

Note: 4. Pulse test

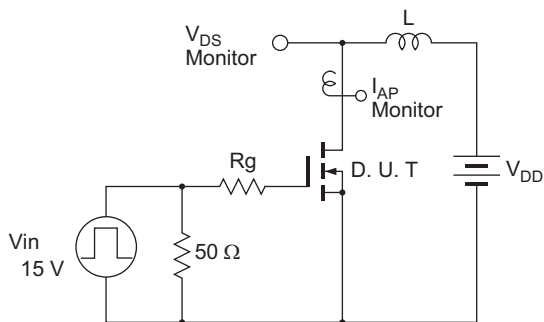
Main Characteristics



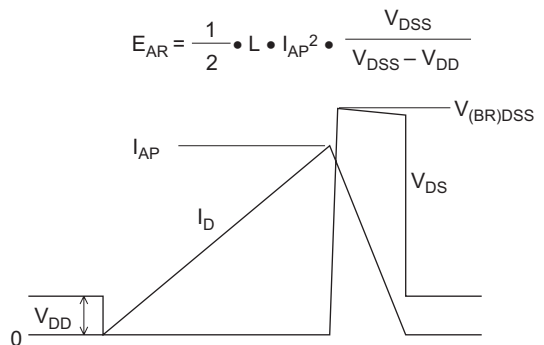


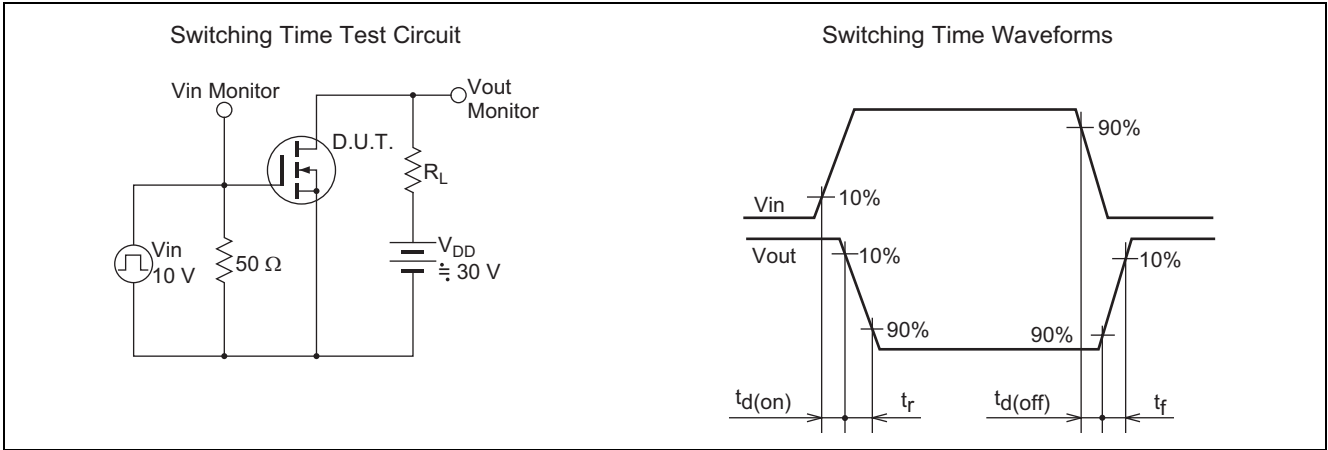


Avalanche Test Circuit



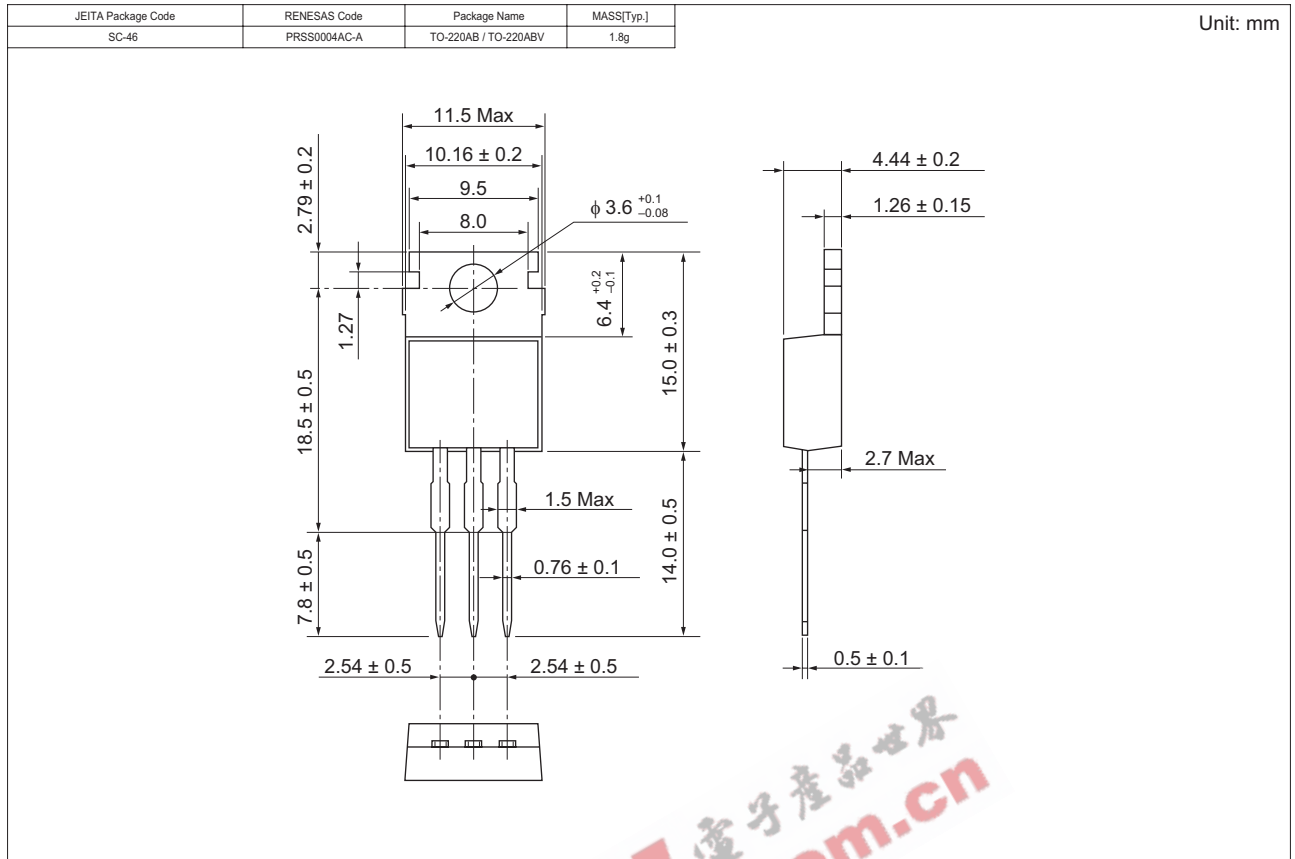
Avalanche Waveform





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Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK2800-E	500 pcs	Box (Sack)

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